The real cost of low income settlements:

Experiences in varied spatial contexts within the same municipal boundary

A thesis submitted to the Faculty of Engineering and the Built Environment

Department of Civil Engineering

University of Cape Town

Thesis presented in fulfilment if the requirements for the degree of Master of Philosophy in Urban Infrastructure, Design and Management in the Faculty of at the University of Cape Town

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May 2016

Declaration

This thesis has been completed in partial fulfilment for the award of a Master of Philosophy Degree in Urban Infrastructure Design and Management in the Department of Civil Engineering, University of Cape Town. I declare that this thesis "The real cost of low income settlements: experiences in varied spatial contexts within the same municipal boundary" is my own work and has not been submitted for any degree at any other university. All sources used and quoted have been indicated and acknowledged by complete references.

Signed by candidate

Signature: _____ Date: 04 May 2016

Executive Summary

Introduction

Since 1994, the response to the low income housing backlog in South Africa has been met with the capital grant, targeted at households earning less than R3500 per month. Scholars and policy makers echo the same sentiments that state funded housing and facilities should be located close to economic opportunities and in close proximity to public transportation systems. However, due to the limitations of the grant, low income housing development has been typically been limited to cheap peripheral land where large scale low income housing projects can be rolled out in the form of low density housing developments.

In recent years, a growing body of knowledge has found that the provision of state funded housing opportunities on the urban periphery has a significant impact on urban sustainability, particularly the financial sustainability of government. This study aims to add to the body of knowledge pertaining to how the roll out of low income housing in various locations within the same municipal area affects a household's ability to access economic and social opportunities in terms of financial and social costs to the household.

Method

The study considers Hessequa Municipality as a case study, with four settlements within the municipality (Slangrivier, Kwanonkuthula, Diepkloof and Melkhoutfontein) used as sub-cases. The four settlements vary greatly in spatial location, population size, history, growth potential and functional role, thus providing a good opportunity to examine the impacts the provision of low income housing by the state within different spatial locations on the lives of households. A case study research approach is applied, using a mix of methods, namely: a review of documents, the mapping of existing facilities, and a survey of 20 households in each of four settlements.

Results

The analysis found notable differences between the provision and access to services amongst the four settlements. The study found that that facility provision to low income households varies from settlement to settlement and that a household's perception about whether accessibility to facilities has improved, is relative to the services which households were previously afforded access. It was found that beneficiaries of housing located in close proximity to facilities and employment opportunities incur little or no cost in terms of travelling to facilities. Households with limited access to facilities have to be selective with regard to which member of the

household can participate in activities offered in the broader settlement, as otherwise the costs of travel can be very onerous for households.

The survey revealed that the opportunity to get a free house far outweighs any inconvenience associated with limited access to social and economic opportunities, with 100% of respondents indicating that they would choose a poorly located free house rather than a rented home in a better location with better access to facilities.

In addition, within the context of the four settlements studied, it was found that travel expenses that would ordinarily have been incurred by households travelling to work and school has been found to be carried by employers or subsidised by government, and therefore have less of an impact on household expenditure than I had anticipated. For example, in Slangrivier 50% of the employed are collected for work by their employer and incur no costs for travelling to work. Similarly, the excessive distance travelled to schools, and its consequent burden of cost, is generally not carried by households, as the Department of Education subsidises the transportation of learners to and from school daily.

It was found that the use of facilities is influenced by distance, cost, availability and, interestingly, personal preference. Although the provision of facilities across the four settlements is currently uneven, the municipality has created an expectation amongst the public that, over time, facilities will be provided in all settlements, irrespective of their location.

Conclusions

The study contributes to the body of knowledge related to how low income households are affected by the spatial location of state funded housing in terms of their access to social and economic opportunities.

It was found that facility provision to low income settlements varies between settlements, although settlements located in close proximity to areas with existing facilities derive the benefit of better access to facilities. Outdated Spatial Development Frameworks and Human Settlements Plans must be revisited to quantify the financial impact of providing facilities in a reactive manner. This study reveals that the current approach to low income housing provision has created a situation in which low income residents willingly accept a free house irrespective of poor location, as government has demonstrated that, in time, facilities will follow or the subsidisation of transport will be introduced in order to access facilities elsewhere. A sustainable alternative to this precedent

must be demonstrated in relation to the provision of future housing for low income communities in order to reverse this perception.

Low income household's accessibility to social facilities is largely determined by whether facilities are in walking distance of their residence. However, this study has found that there is not necessarily a link between access and use of facilities. It is recommended that the age-structure of the household and target community's interests should be considered when planning for facilities to avoid non-usage of facilities and prevent wasteful expenditure.

In the study area it was found that members of low income household's interaction with facilities within the larger settlement directly relates to the monthly collection of social grants and monthly shopping activities, and found that the location where social grants are collected are particularly important destinations in the lives of residents in low income settlements. Therefore, special attention should be given to the location of these facilities in relation to where expansion of low income settlements are proposed and how low income residents will access these facilities.

The study determined that low income households view a free house as more important than accessibility to facilities and that the impact of the cost of transportation on the budgets of low income households is largely shielded by subsidisation of transportation. Further studies in how changes to the main economic drivers in the region, i.e., agriculture and construction, will impact on low income households financially should be considered.

Acknowledgements

I would like to acknowledge the Western Cape Department of Environmental Affairs and Development Planning for the opportunity to further studies. Thanks also to my colleagues and family for their encouragement and support when I needed to stay motivated.

A special acknowledgement goes to my very patient supervisor, Warren Smit, who selflessly offered his time and guidance to get me through this last, seemingly insurmountable hurdle.

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Chapter 1: Overview

1.1 Introduction

The location of state investment in housing and facilities has an enormous impact on the state's financial sustainability and the lives of households. The consensus amongst scholars and most policy-makers is that "well-located" areas, close to economic activities and transportation nodes, should be prioritised for investment in housing and facilities, so that residents are able to access a range of opportunities in these settlements. However, in reality the provision of state funded housing opportunities in South Africa tends to occur counter to this argument.

In recent years a growing body of knowledge has found that the provision of state funded housing opportunities on the urban periphery in the forms of low density sprawl has a significant impact on urban sustainability. This study aims to add to the body of knowledge pertaining how the roll out of low income housing in various locations impact affects a household's ability to access economic and social opportunities in terms of financial and social costs to the household. The sections that follow include the background and aim of the study and introduce the research question, which is answered by the findings of this study. I then describe what is to be expected in each of the chapters of the study.

1.2 Background to the study

Regardless of the spatial logic articulated in national and provincial policies in South Africa, the limits to urban development are still informed by budgetary constraints and limited availability of publically owned land and often is characterised by large low income residential developments in peripheral urban areas, motivated by the quantity of units rather than quality of life consequent to such developments. As a Town and Regional Planner working at the Western Cape Government Department of Environmental Affairs and Development Planning (WCG DEA&DP), assisting local municipalities to draft their Municipal Spatial Development Frameworks (MSDFs) and Human Settlement Plans (HSPs), I am particularly sensitised to challenges faced by Municipalities to respond to the needs of growing low income communities in need of state funded housing.

The Western Cape Provincial Spatial Development Framework (WCPSDF) first metaphorically described current development patterns in settlements in the Western Cape as a 'doughnut', with relatively little development in

the centre of towns, as most of it is taking place on the periphery either as low and middle income suburbs or more far flung golf estates, office parks and industrial estates. The WCSDF advocated that existing settlement patterns be transformed from 'doughnuts' to 'cupcakes' – where the cupcake holder is likened to the urban edge and development intensity is likened to the icing and sprinkles at the centre top of the cupcake) (CNdV Africa and PGWC, 2005). The document contained a number of mandatory and guiding principles aimed at assisting local municipalities to attempt to redress spatial imbalances in their settlements, but little change was apparent within the spatial form within settlements. The FFC (2011) argue that the reasons why policy intentions in favour of more efficient cities have failed in South Africa was due to the fact that these arguments have not been articulated in terms of real costs, suggesting that current developmental patterns must be measured in terms of economic and fiscal costs in order for the desired change to compaction to occur. The FFC used a city efficiency costing model developed to calculate the capital and recurring costs in a hypothetical city over a period of ten years in order to demonstrate an urban sprawl growth scenario and a 'compact city' model as an alternative. The study concluded that low income households are most adversely affected by urban sprawl, having to pay significantly more for transport.

The Municipal Financial Sustainability of Current Financial Spatial Growth Patterns study (WCG, 2013) followed on the previous studies, mentioned above, as part of a suite of studies complementing the most recent version of the WCPSDF (WCG, 2014). The study substantiated the most recent version of the WCPSDF with quantitative evidence that current spatial patterns are not sustainable for communities and detrimental both to the environment and the lives of poor households. The study showed that the organization of economic activities and infrastructure in space fundamentally impacts on the viability of these activities, people's access to opportunities and the natural environment. Continuing the current delivery model of isolated housing projects on the periphery of settlements exacerbates the financial vulnerability of municipalities.

While recent work such as the Mossel Bay Growth Options Study (PDG, 2015) builds on the abovementioned study by placing emphasis on the financial impact of low income developments on the financial feasibility of municipalities, a void appears to exist regarding the financial impact on the financial situation of low income households of their relocation to state housing developments within a defined municipal space.

Through this study, it is intended to contribute to the body of knowledge on the financial and social impacts of the spatial location of state funded housing and related facilities with particular reference to low income households.

1.2 Aims of the study

The aim of the study is to contribute to empirical research on how low income households are affected socially and financially by their placement in state funded housing within spatially diverse contexts. The reason why four settlements in the same municipal area are considered is to examine the social and economic impact of different spatial locations affect a household's ability to access economic and social opportunities.

1.3 Research question

In order to address the aim of the research as stated above, the following research question will be answered within the context of a defined municipal space using a case study approach: "How do different types of locations impact on the ability of low income households to access economic and social opportunities in terms of financial and social costs?"

1.4 Structure of the thesis

This thesis consists of five chapters aimed at answering the research questions posed above and is organised as follows.

The first chapter introduces the research problem and provides the rationale and objectives of undertaking the research through the formulation of a research question. Chapter Two orientates the reader by providing a review of existing local and international literature exploring low income settlement planning and facility provision. The third chapter describes the research method used to answer the research question. In this chapter, the method for undertaking the analysis of existing facilities accessed by households surveyed is described and the method of undertaking the household survey explained. Chapter Four outlines the context in which the research question is posed in the spatial setting of four settlements in Hessequa Municipality, namely Slangrivier, Diepkloof, Kwanonkuthula and Melkhoutfontein and considers the history and function of the settlements, low income housing demand, and future areas of growth as described in the Hessequa Spatial Development Framework and Human Settlement Plan (Hessequa Municipality, 2012a and 2012b). Chapter five starts with an analysis of where facilities which are accessed by 20 selected households in each of the four settlements are spatially located in relation to their homes. The understanding of where the facilities are located directly links to the second part of chapter five which analyses the responses to the survey questionnaire to understand how household incomes have been impacted on due to their location in a new space. The chapter further aims to present the main results of the data analysis and tie the findings of the study to the research question posed in the introductory chapter. Chapter six is the concluding chapter in which the whole thesis is synthesized and

answers are provided to the research question. In addition the theoretical and policy implications of the study will be touched on.

1.5 Summary of the chapter

This chapter serves to introduce the study and provides the background and rationale for the study. The aim of this study is to contribute to empirical research on how low income households are affected socially and financially by their placement in state funded housing within different types of location.

It is important to place this study in the context of relevant literature on the location of housing and the impacts of this on urban sustainability. In the following chapter, relevant literature is reviewed in order to understand the implications to municipalities of urban sprawl both locally and internationally. Furthermore the chapter will consider how and the location of state funded housing in peripheral locations have affected the beneficiaries' of these housing developments quality of life and ability to access economic and social opportunities.

Chapter 2: Literature Review

2.1 Introduction

The research question asks "How do different types of locations impact on the ability of low income households to access economic and social opportunities in terms of financial and social costs?" In order to assist with answering this question, the section that follows draws on the literature related to the financial implications of urban sprawl and provision of state funded low income housing (both internationally and locally) in order to understand how the location of low income housing developments have affected beneficiaries' ability to access economic and social opportunities related to a quality urban life.

2.2 Urban sprawl, low income housing and facility provision in developing countries

Over time, urban sprawl, a trend long associated with cities in North America, is fast engulfing many developing countries where real estate developers are pushing a "world class lifestyle" (UN Habitat, 2010). Moreover, it is estimated that, between 2010 and 2015, some 200,000 people on average were added to the world's urban population each day. UN-Habitat (2012) noted that 91 per cent of this daily increase was expected to take place in developing countries:

> Cities are expanding in a discontinuous, scattered and low-density form that is not sustainable… In the developing world, it was observed that the average built-up area densities declined in 75 out of the 88 sampled cities, or 6 out of 7, between 1990 and 2000. Densities shrank from an average 174 persons per hectare (p/ha) in 1990 to 135 p/ha in the year 2000 (UN-Habitat 2013: 32-33).

Governments struggle to address the housing needs of especially the poor, as existing urban infrastructure is unable to cope with the pressures of population growth. This results in the reality that populations in developing countries live within the context of extreme inequality as and governments struggle to address severe housing backlogs. Within the context of a lack of resources, governments have been forced into making difficult decisions about the size and the number of subsidies to be offered (Gilbert, 2004).

According to Smit (2004), South Africa's housing policy was based on international good practice during the early 1990s. Some developing countries have attempted to eradicate their housing backlogs through mass

housing projects, but due to the limitations of funding and magnitude of need, this has usually resulted in the provision of new housing in peripheral areas on large tracts of inexpensive land, with minimal attention focused on the provision of social facilities related to urban living. Experiences from Chile and Brazil, two developing countries, who, like South Africa faced high rates of urbanisation, with large housing deficits and a large proportion of the population being poor and responded to their challenges with the aid of large state housing programmes on less expensive, peripherally located land, located vastly away from facilities. One notably different characteristic of the Chilean and Brazilian experience was that although peripherally located, the large housing projects featured higher density models when compared to South Africa.

However, the race to address housing backlogs in a quantitative manner, rather than focusing holistically on a quality living environment, resulted in spatially distorted living environments, particularly for the poor, who pay dearly for accepting the trade-off between formalised housing at the expense of social inclusion, in housing developments offering little or no investment in public facilities and services and is elaborated on in the section that follows.

2.2.1 Chile

The Chilean housing policy is a particularly noteworthy example of a large state housing programme in Latin America. Cummings and DiPasquale (2002) suggest that the focus of the Chilean housing policy was almost exclusively devoted to promoting home ownership and revolved entirely around newly built developments, not the upgrading or redevelopment of existing settlements. One of the aims of Chile's upfront capital housing subsidy policy was poverty alleviation but also to decrease the notion of dependency by matching allocation to households with a willingness to save (Gilbert, 2004). Housing policies have therefore shifted away from a direct government provision system, through a 'self-help' approach, to a market-based mechanism. Through housing policies introduced to Chile in the 1970s, housing finance and construction were delegated to the private sector. State subsidies were then awarded to beneficiaries through means-testing which combined one-time subsidy, obligatory savings, and an optional loan component (McBride, 2011 Moye and Horne, 2013).

The Chilean housing programme encouraged the purchase of new units, which in the context of limited space meant developing housing units in distant locations (Cummings and DiPasquale, 2002). However, successes in the eradication of the housing backlog in Chile through the mass roll out of housing opportunities (developments of 350 or more units) mainly built on undeveloped and remote land which subsequently leading spatial distortions with the development of large concentrations of poor people at the fringe of the city. Housing

projects developed in Santiago was found to be further away from employment opportunities and social networks.

The trade-off for better housing included job losses, increased expenditure on travel costs and difficulties with accessing facilities such as schools and clinics, and the undermining of existing social capital. Ducci (2000) criticised the Chilean housing policy, commenting that social capital had been undermined because families have been relocated to the outskirts of the city, away from friends, relatives and the old neighbourhoods. In addition, in Chile the small size of the new homes had helped destroy the concept of the extended family Gilbert 2004, pg. 31).

Ureta undertook a study in 2008 considering social exclusion and mobility as an everyday experience among 20 low income households in the city of Santiago, Chile. The interviewed households lived in Tucapel Jimenez II, a housing estate developed by the government on the western edge of Santiago. The study found that the connection between social exclusion, accessibility and mobility can be found in two interrelated aspects of the daily travels of households, namely the places where people go to and the modes of transport used to do so. It was found that the capacity of individuals to reach distant locations is reduced when mobility is primarily based on walking, as no other option of mobility is available due to financial constraints, leading to the limited degree to which families can participate in urban life within the city of Santiago. The interviews revealed that apart from travel to work, places of education or for purposes related to the maintenance of the home, any travel unrelated to these prioritised needs are commonly postponed or discarded due to cost and time constraints. The author concluded that "when travelling is devoted mostly to compulsory places, the whole experience of urban space becomes ruled by the sign of necessity, a space of survival rather than belonging" (Ureta, 2008, page 286). Newer developments in Chile now attempt to include the following range of facilities, determined by the number of households accommodated in the development.

Table 2.1: Facility provision in relation to number of households in Chile (adapted from Smit 2006)

Facility type and size	**Playground**	**Recreational area**	**Multipurpose community hall**	**Sports field**
Number of households				
30 to 70 households	200m^2	80m^2	-	-
71 to 200 households	400m^2	200m^2	120m^2	-
201 to 300 households	800m^2	-	120m^2	600m^2

Even though public spaces are now provided in newer developments, the resultant effects on social cohesion has resulted in few public spaces being utilised, as many parents perceive the public spaces of the housing

estate as particularly dangerous, and children are not allowed to use public spaces unless necessary or unless accompanied by a parent (Ureta, 2008, page 283).

2.2.2 Brazil

Housing policy in Brazil was also characterised by the provision of low income housing on the periphery of cities. The government in control in Brazil between 1964 and 1985 relocated informal settlement residents into large public housing estates on the edges of cities. Subsequently, new informal settlements of those who were not accommodated in the new estates emerged, creating even greater numbers of low income communities on the outskirts of urban areas (Ancona, 2007: Budds et. al., 2005: O' Meara, 2010).

Budds et. al (2005) explain that large developments of multi storey apartment blocks were built up to 20kms from the city centre. Most were built with basic infrastructure (water, sewerage, drainage, etc.) but without the local provision of public and social services such as crèches, schools, health facilities, community centres, leisure facilities or public spaces. Subsequently residents had to rely on services found in other neighbourhoods. Furthermore, transport services to neighbouring settlements or the city centre were inadequate, restricting residents' ability to reach employment opportunities, shops, services and government offices.

In recent decades there have been attempts to deal with these problems. The new legal framework introduced in the State of São Paulo in 2001 allowed the municipal government to purchase and redevelop privately held land. Special zoning legislation was also introduced to promote social housing and redevelopment projects. Lastly, Social Interest Zones were created to prioritize urban redevelopment for low income groups in specific and better located areas with better access to public and social facilities, places of employment and other services in order to avoid the replication of past experiences where the poor were left marginalised on the outskirts of urban areas (Budds et. al, 2005; O' Meara, 2010).

Case studies from Chile and Brazil's public housing responses indicate that, over the long term, the decision to roll out mass housing developments on peripheral land have had severe implications for the beneficiaries of housing. It has been learnt that low income communities are most vulnerable when left with few options for accessing employment, social, administrative and health facilities (Ureta, 2008).

Employed members of households are left to spend much of their time and money commuting to their places of work, and, in situations where finances are particularly strained, facilities can only be accessed on foot (Budds et. al., 2005, and O' Meara, 2010). In situations where the distance between homes and facilities are particularly

great, the quality of life of households are affected, and experiences of urban life are constrained to the local settlement or even just to the home (Ureta, 2008).

2.3 Low income housing and facility provision in South Africa

Apartheid planning not only legalised the reservation and segregation of land in South Africa in a highly inequitable manner according to race but also structured the inequitable degree in which economic and social opportunities were made accessible to communities. In 1994, the new government of South Africa was confronted with a huge housing backlog. More than 1.5 million informal units in urban areas were not located on titled land, but in informal settlements, and, in addition, millions were living in bad conditions within rural areas, all of whom had an expectation of better living conditions (Bond and Tait, 1997).

The perception that this expectation would be met did not appear unrealistic, as the notion of urban spatial restructuring and the idea of compaction and integration has been an important part of South African post-apartheid urban policy (Todes, 2006). This change in policy was cemented through the drafting several forms of legislation, policies, plans and strategies post 1994, including the Reconstruction and Development Programme (1994), the Development Facilitation Act (Act No. 67 of 1995), the Urban Development Framework (1997) and the National Housing Act (No. 107 of 1997).

The preceding literature review suggests that international responses to low-income housing backlogs have been pursued in the form of mass high density and high rise housing projects and included contributions from households in order to attempt to avert dependence on the state. However, the South African government opted for mass low-income housing, using single storey, low-density housing types.

However, in the late 1990s, it was realised that national housing subsidies based on a capital grant to low-income households were insufficient to cover either the costs of higher density development or higher land costs in well-located areas (Todes et. al., 2000). Not only did the subsidy have to meet the costs of construction, but also the purchase of the land and the provision of the necessary infrastructure related thereto (Huchzermeyer, 2003). Khan and Thurman (2001) suggest that in order to maximise the amount available for 'top structures', poorly located, cheap land was used for low income housing. The new housing developments usually were located on the periphery of towns and cities, far from employment opportunities, and had a lack of community facilities (e.g. CSIR, 1999; Gear, 1999; PSC, 2003, Zack & Charlton, 2003).

2.4 The financial implications of urban sprawl

Urban sprawl contributes to the high numbers of cars, distances travelled, length of paved roads, fuel consumption, alteration of ecological structures and the conversion of rural land into urban uses – all of which are environmentally unsustainable (UN- HABITAT, 2013).

Experiences with the phenomenon of urban sprawl in the United States (US), characterised by low density and spatially expansive, vehicular dependant development patterns has been well documented (Ulfarsson and Carruthers, 2006; Fulten et al., 2001; Ewing et al., 2002). Based on experiences in the US, Ewing et al. (2002), concluded that people living in more sprawling regions tend to drive greater distances, own more cars, breathe more polluted air, face a greater risk of traffic fatalities and walk and use transit less. Using 17 case studies, a study by Smart Growth America (2013) assessed the impact of two development scenarios on municipal budgets in the US, namely the "compact or smart growth" development scenario (characterized by more efficient use of land; a mixture of homes, businesses and services located closer together; and better connections between streets and neighbourhoods) versus the "Conventional suburban development" scenario (characterised by less efficient use of land with homes, schools and businesses separated and areas designed primarily for driving). The overall results showed that smart growth development saves an average of 38% on upfront costs for the new construction of roads, sewers, water lines and other infrastructure and that this development pattern saves an average of 10% on service delivery costs.

2.4.1 Focus on financial feasibility of governments – Spain

In recent decades, there have been a particularly large number of scholars examining the impact of urban sprawl on in the cost of providing local public services in Spain. For example, Hortes-Rico et.al (2010) report that whilst the period 2000-2004 the extent of developed land in Spain increased by 11.5 percent, mainly characterised by low density and scattered urban growth, the proportion of compact developments only increased by 4.1 percent during the same period. Furthermore, Benito et. al (2010) considered 3179 Spanish municipalities with a population of 1000 or more in 2005, and developed a model that considered the calculation of expenditure on a per capita basis, while considering population density in urban areas (rather than the full extent of the municipal area) as an indicator of sprawl. Three dependent variables were considered namely total expenditures, current operating expenditures and investment expenditures. Benito et.al applied their model to the sample

areas and found clear relationships between higher population densities and lower expenditures per capita. The study also suggests that local governments provide more services to children and young people (e.g. schools, sports and cultural facilities) than the elderly, and concluded that an aged population leads to less spending by local government as the elderly demand less public services.

Exploring the topic further, Hortas-Rico and Solé-Ollé (2010) undertook a detailed investigation to develop an accurate measure of urban sprawl so that its impact on municipal budgets could be tested empirically. Using a cross sectional dataset of 2500 Spanish Municipalities (with more than 1000 inhabitants) for the year 2003 cost estimations were derived for expenditure categories related to urban life, including community facilities, basic infrastructure and transport, local police, culture and sports, housing and community development and general administration. Four variables were applied to the model to measure urban sprawl including density, the number of population centres, the number of residential housing units and the percentage of scattered population. It was found that in municipalities with a spatially expansive development pattern, the provision of public services increases initially as a result of increasing road construction and rising administration costs. Costs then continue to rise as a result of higher costs in providing community facilities, housing, police and cultural facilities. The authors also concluded that more spatially expansive urban development undermines the use of economies of scale for services such as refuse collection, street cleaning and public transportation. Lastly, the expansion of settlements results in the inefficient increase of costs associated with the need to extend electricity, water and sewer lines over long distances to reach a small number of residents (Hortas-Rico and Solé-Ollé, 2010).

However, the authors caution that the desired development pattern of residents should not just be seen as a problem, and that local government's fulfilment of the desire for larger, single family detached housing might justify the higher rates of taxation needed to subsidise these increased costs. Furthermore, a sprawling development pattern allows for the potential increased revenue generation for local governments through the sale of land, planning permissions, land and construction taxation, etc.

2.4.2 Focus on financial feasibility of low income housing provision in South Africa

The location of low-cost housing projects are influenced almost entirely by financial constraints of the housing sector and is affected by factors related to locality such as the distance from bulk and water supplies and main roads as well as in-settlement factors such as standards to be provided and dwelling density (Aucamp and Moodley, 2002; Venter et. al, 2004). The decision of where to locate low income housing projects is largely determined by the greater affordability and availability of land on the periphery of settlements as opposed to

expensive land in more central areas; this is mainly due to the fact that the subsidy amounts is simply insufficient to build higher densities to offset the higher land costs (Bierman and van Ryneveld, 2007).

The study further highlighted that poorly situated, low income housing projects result in higher transport costs for the commuter, and thus requiring higher subsidies for public transport, as the low income segment of the population are entirely dependent on public transport (Bierman and van Ryneveld (2007). Van Ryneveld (2010) commented that "where a city has high levels of private motoring convenience and poor public transport, car owners are able to access the agglomeration of opportunities but public transport users are not".

Similar to the experience in Spain, over recent years a new focus on the financial feasibility and sustainability of the provision of low income housing in South Africa, has received more attention.

Further to this, the FFC (2011) asserts that transport subsidies in South Africa often match or exceed housing subsidies as a result of the continued development of low income settlements on the urban periphery and need for residents to commute great distances in order to access opportunities. This is the unfortunate reality of many settlements in South Africa. Today, inequality between rich and poor prevails in many South African settlements due to the lack of congruence between location of new low income housing and the location of economic and social opportunities.

The FFC (2011) argues that the reasons why policy intentions in favour of more efficient cities have failed was due to the fact that these arguments have not been articulated in terms of real costs, suggesting that current developmental patterns must be measured in terms of economic and fiscal costs in order to make an impact. Subsequent studies such as the Municipal Financial Sustainability of Current Spatial Growth Patterns (WCG, 2013) and the Mossel Bay Growth Options Study (PDG, 2015) have steered a new focus around this matter, with particular reference on the long term impact of the financial sustainability of Municipalities if current development patterns are continued. Whilst the impact of large scale low income developments on peripheral land has been explored in terms of municipal financial sustainability' the financial and social impacts of the provision of state housing on the households has not received similar attention.

2.5 Summary of the chapter

The provision of low income housing in South Africa has been similar to experiences in Chile and Brazil with respect to utilising cheap, marginally located to provide mass housing developments, although at much lower

densities in the form of single stand housing opportunities. While a better understanding is emerging about the impact of such developments on local governments in South Africa, there is a lack of understanding of how low income households are impacted on socially and financially due to their placement in state funded housing. It is for this reason that this study will attempt to add to the body of knowledge and aims to contribute to empirical research on how low income households are affected socially and financially by their placement in state funded housing in different types of locations.

Chapter 3: Research Method

3.1 Introduction

As mentioned in the introductory chapter, the research aims to contribute to empirical research on how low income households are affected socially and financially by their placement in state funded housing within spatially diverse contexts. The research question reads as follows: "How do different types of locations impact on the ability of low income households to access economic and social opportunities in terms of financial and social costs?"

In order to best address the research question, a case study research approach is applied. The central concern of case study research is "the collection and study of multiple forms of evidence, in sufficient detail to achieve understanding" (Gillham, 2000, p. 19). The case study approach is a strategy rather than a method; "within this broad strategy a number of methods may be used - either qualitative, quantitative or both" (Hartley, 2004, pp. 323–324). The validity of qualitative research can be improved by "triangulation", i.e. using different sources of information, different methods, different theories and different types of data (Denzin & Lincoln, 2003).

I therefore use a mix of methods: a review of documents, the mapping of existing facilities, and a survey of households 20 households in each of the four settlements. An embedded case study design (Yin, 2003) is used – with Hessequa Municipality as the overall case, with four settlements as sub-cases within Hessequa Municipality. Hessequa Municipality was considered a good case study as the four settlements used as sub-cases vary in spatial location, population size, history, growth potential and functional role within the municipal area but collectively represent the bulk of the low income housing demand in the municipal area of Hessequa Municipality.

The chapter is structured as follows. Firstly, the reasoning for and method of mapping existing facilities each of the four settlements is explained. Secondly, the manner in which the survey questionnaire was prepared, undertaken, captured and analysed is described. The chapter concludes with the findings of the chapter.

3.2 Mapping of existing facilities

The mapping of existing facilities accessed by households, as a complement to the household survey was undertaken to contextualise the settlement and community and understand the location existing facilities accessed by households of the four settlements in relation to the location of their homes. A0 aerial photographs were used for respondents to indicate typical routes residents walk to reach facilities. The distance between the settlement and facilities are also documented based on the inputs from respondents and quantified via Google Maps. It is important to understand the spatial distribution of existing facility provision and to triangulate this with the findings of the household survey in order to verify sources of information.

Information sources included existing documentation such as the Hessequa Municipality IDP, HSP and SDF, as well as interviews with relevant officials and ward councillors. Prior to undertaking the survey, a site visit was undertaken to verify the location of existing facilities as seen in documentation. The information gathered was complimented by inputs by respondents on the routes they walked to reach the facilities (with the aid of A0 aerials) in order to create graphics illustrating the distance and common routes travelled by households to access facilities.

3.3 Survey questionnaire

The second research method entailed empirical research and forms the most substantive part of the research study. The survey involved face to face interviews with 80 households using a prepared questionnaire with 20 households in each of the four settlements, in order to understand how the location of the state funded housing has impacted on the ability of low income households to access economic and social opportunities in terms of financial and social costs.

3.3.1 Preparation

Permission was obtained from the Ethics Committee of the Engineering and Built Environment (EBE) Faculty of the University of Cape Town before undertaking the survey. Officials from Hessequa Municipality's Planning, Housing and IDP Departments, with the most immediate and accurate knowledge about the four settlements were approached on the best way to undertake the survey based on their previous experience with undertaking surveys in the community, so as to be informed as to how the survey would likely be received by the community.

In addition, the ward councillors of wards 1, 4, 5 and 7 in the municipality were contacted and informed of the intention to undertake the survey and provided with background related to the objectives of the survey.

Survey instruments included the blank printed questionnaires, pens and markers. A0 aerial photographs obtained from the Municipality as well as maps contained in the approved Municipal Spatial Development Framework were brought along to assist during the interviews.

3.3.2 Managing expectations

Initially it was intended to undertake the surveys with the presence of a municipal official but I was advised against that approach in light of the anticipated municipal elections, and in order to prevent possible confusion between this research and any initiatives undertaken by the Municipality. The fact that the survey was not associated with the Municipality also managed possible tension and expectations of further investment a result of the survey.

3.3.3 Participant selection

The research sample consisted of 80 households from Hessequa Municipality, with 20 households from each of the four selected study areas, namely Kwanonkuthula (Riversdale), Diepkloof (Heidelberg), Slangrivier and Melkhoutfontein. A convenience sampling method was employed, looking for respondents were adult members of households residing in a low income housing opportunity provided by Hessequa Municipality, who were observed to be at home at the time of the interview and willing to participate in the survey through face to face interviews. This method allowed me opportunity to build a rapport with the respondents and take cues from their responses on whether they understood the question or needed further explanation. I was also able to sense whether or not they were indeed interested in participating in the survey. The disadvantage of this method is that that due to the time of day that the survey was undertaken, many employed persons or heads of households would not be available at the time of the survey.

3.3.4 Pilot survey

A pilot test was conducted before the main collection of data, so that questions could be modified or improved if required. Although the questionnaire attached as Annexure A is in English, respondents were asked whether or not they would be comfortable that the survey would be rendered in English or Afrikaans, or whether they

would prefer the survey conducted in isiXhosa. The majority of the respondents preferred to be interviewed in Afrikaans, with a few respondents comfortable to respond to the questions in English. Fortunately I am fluent in both English and Afrikaans and easily rendered the interview in Afrikaans. There were no requests to render the survey in isiXhosa.

3.3.5 Data collection

The survey was undertaken through face to face interviews from 12 to 15 October 2015 during the day.

Each respondent was provided with consent letter that firstly gave background to the survey with an explanation of what the research would be used for. The latter part of the letter allowed for the respondent to indicate in writing whether or not he/she consented to partake in the survey. Respondents were informed that if they preferred to not participate in the survey or if they agreed to participate in the survey and then chose to discontinue for whatever reason, there would be no consequences. Respondents who did agree to participate were informed that their identity would not be revealed, and that confidentiality would be assured. This was achieved by removing identifying information such as names and addresses from the questionnaire and the substitution these with codes for example, Respondent 16SL.

The respondents were assured that data obtained during the survey was only to be used for the purpose of research and would be kept in a safe place. Respondents surveyed were relaxed and responsive to speaking in their mother tongue offering the interviewer a warm reception to their homes (prior discussions with municipal officials and ward councillors eluded to the fact that community members would be easily engaged and willing to contribute to the research effort).

3.3.6 Data analysis

The 80 completed questionnaires were labelled numerically and provided with a reference so as to identify which settlement the respondent was from. The questions and data obtained through the survey were captured in an Excel spread sheet. Numerous techniques were then used to graphically represent the data, trends and findings including tables, graphs and charts and are analysed in Chapter 5.

3.4 Summary of the chapter

The chapter describes how background information regarding existing public facilities in the four settlements was sourced through documentary research, interviews and site visits in order to assist to answer the research question.

The case study approach was found to be the most appropriate research method. Two main methods were applied namely the mapping of existing facilities and the undertaking of a household survey for which permission was granted by the UCT Ethics Committee. For the mapping exercise, information was sourced from multiple sources including existing documentation the Hessequa SDF and HSP as well as through site visits to each settlement. The chapter introduced the survey questionnaire and described how the questionnaire was refined with the assistance of officials from Hessequa Municipality. The pilot survey gave an indication that the survey would best be rendered in Afrikaans, as this is the language respondents were the most comfortable to communicate. The chapter also detailed how the data was collected explains how the confidentiality of participating respondents was assured.

Hessequa Municipality was considered a good case study as the four settlements used as sub-cases vary in spatial location, population size, history, growth potential and functional role but collectively represent the bulk of the low income housing demand in the municipal area of Hessequa Municipality. The contextual overview of Hessequa Municipality and the four settlements used as sub-cases follows in the next chapter.

Chapter 4: Contextual analysis

4.1 Introduction

As discussed in the previous chapter Hessequa municipality was chosen as the study area for this research. The Municipality faces needs for housing opportunities in rural and urban towns with varying growth potential. The main information used to contextualise the settlements is sourced from existing documentation, including the Hessequa Municipality Integrated Development Plan (Hessequa, 2014), Hessequa Spatial Development Framework (Hessequa, 2012a) and the Hessequa Municipality Human Settlement Plan (Hessequa, 2012b).

4.2 Municipal context

Hessequa Municipality is located in the Southern Cape on the Garden Route approximately 320km from Cape Town and covers an area of 5733km^2. The N2 is the main traffic route through the municipality. The population of approximately 55563 (Hessequa Municipality, 2012b) is scattered throughout the municipality in towns, villages and non-urban areas.

Figure 4.1: Map indicating Hessequa Municipality within the Western Cape Province

Agriculture is the main employment sector in Hessequa Municipality. The Municipality's unemployment rate stood at 14.1% in 2011 (Western Cape Provincial Treasury, 2014). The study also notes that over the 2000 to 2013 period, a total of 3320 formal jobs were lost in the agricultural sector alone, while 380 and 630 jobs were lost in the manufacturing and services sectors respectively.

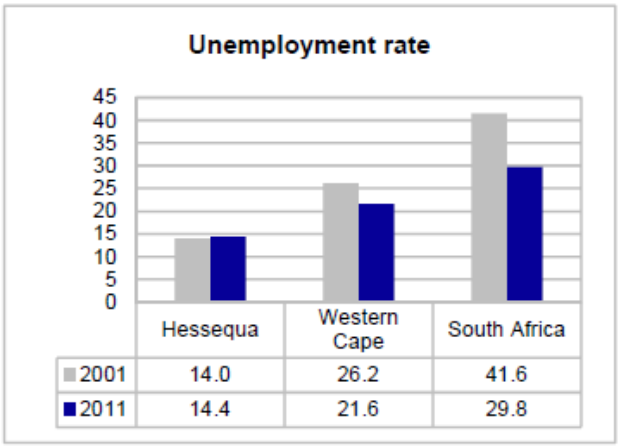

Table 4.1: Comparative unemployment rates (WC Provincial Treasury, 2014)

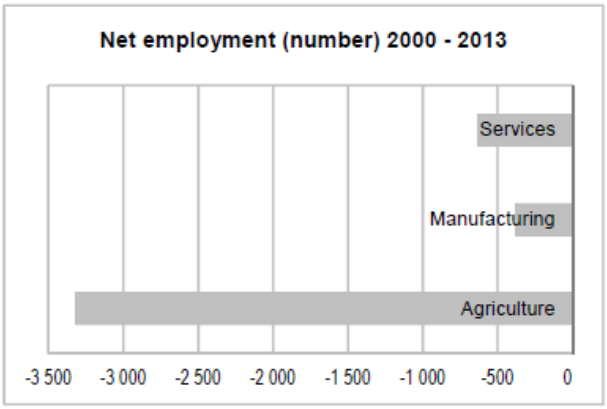

Figure 4.2: Employment by sector for Hessequa Municipality (WC Provincial Treasury, 2014)

Town Name	Housing Demand
Riversdale	1369
Heidelberg	781
Albertinia	338
Stilbaai	43
Slangrivier	351
Gouritsmond	10
Melkhoutfontein	406
TOTAL	3298

Table 4.2: Housing demand in Hessequa Municipality (WCDHS, 2014)

According to the Western Cape Housing Demand Database July 2014 extract (WDoHS, 2014); the 2014 low income housing demand in Hessequa Municipality was determined to be 3298. Notably 2907 of this demand, (that is, 88% of the total housing demand in Hessequa Municipality), stems from the settlements in Riversdale, Heidelberg, Slangrivier and Melkhoutfontein. This housing demand refers to a preliminary list of households drawn from the municipal housing database by the application of municipal selection policy prior to the checking of the eligibility of the households by the Western Cape Department of Human Settlements. The spatial distribution of these four towns is illustrated in the map that follows.

Figure 4.3: Map indicating the spatial distribution of the four towns within Hessequa Municipality (Source: Hessequa Municipality, 2012a)

According to the Growth Potential of towns Study (GPS) (WCG DEA&DP, 2014), the growth potential of three of the four towns vary from very low to medium as indicated in the table below. However, Melkhoutfontein is not listed in the GPS, but the authors of the GPS advise that the growth potential for this town is considered to be lower than that of Slangrivier.

Table 4.3: The socio-economic needs of selected towns in Hessequa Municipality (absolute) cross tabulated with growth potential (WCG DEADP, 2014)

	Socio-economic needs			
Growth potential	**Very low**	**Very low**	**Low**	**Medium**
	Low	Slangrivier		
	Medium			
	High		Heidelberg (Diepkloof, a settlement within Heidelberg)	Riversdale (Kwanonkuthula, a settlement within Riversdale)

4.3 Settlement context

4.3.1 Kwanonkuthula (Riversdale)

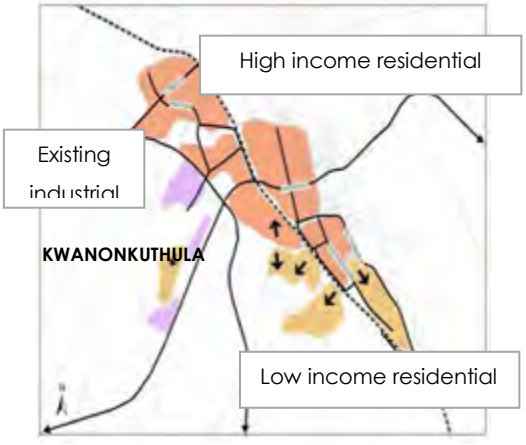

Figure 4.4: Location of the settlement of Kwanonkuthula within the town of Riversdale (Source: Hessequa Municipality, 2012a)

The settlement is located in Riversdale town which is categorised as a first order node with moderate growth and development potential. Riversdale is considered the administrative hub of the Municipality and is a service centre for surrounding farms and surrounding nodes. Kwanonkuthula is located in the south west part of Riversdale, south of the N2, close to industrial areas and physically segregated from the town's central business and higher income residential areas.

The image below indicates the growth in the number of dwellings in Kwanonkuthula from 2006 to 2013. It can be seen that most of the dispersed units were present in 2006, with a few additional structures present in 2009. The new residential units were developed in 2010. The section of the settlement that was surveyed is circled in red.

Figure 4.5: Growth of number of dwellings in Kwanonkuthula, 2006-2013 (WCG DEADP, 2015)

Table 4.4: Riversdale population projections - up to 2020 (Source: PWC, 2014)

Population (2011)	Projected Population 2015		Projected Population 2020	
	High Growth Scenario 1.8% p.a.	Low Growth Scenario 0.57% p.a.	High Growth Scenario 1.8% p.a.	Low Growth Scenario 0.57% p.a.
16176	17384	16549	19021	17027

Table 4.5: Riversdale household projections [based on PWC (2014) population projections]

Households (2011)	Projected Households 2015		Projected Households 2020	
	High Growth Scenario 1.8% p.a.	Low Growth Scenario 0.57% p.a.	High Growth Scenario 1.8% p.a.	Low Growth Scenario 0.57% p.a.
4902	5268	5160	5764	5160

*Note: **assuming 3.3 people per household (2011 Census)*

The population and household projections for Riversdale above suggests that even at its highest projected growth rate, the settlement is still rather small in relation to other cities and towns across the province, although the housing demand database still indicates a need for 1369 housing opportunities (Hessequa Municipality, 2012).

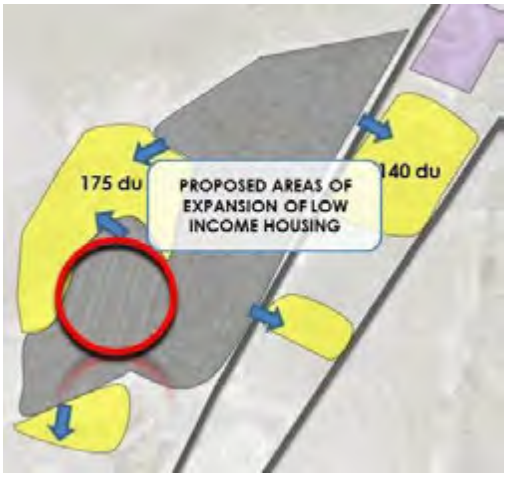

Figure 4.6: Proposed expansion of Kwanonkuthula as per the Hessequa HSP (Hessequa Municipality, 2012)

Proposed areas for the expansion of Kwanonkuthula are indicated in Figure 4.5, as sourced from the Hessequa Human Settlement Plan (Hessequa, 2012b). The HSP depicts several possible opportunities for the expansion of Kwanonkuthula, notably all possibilities are located south of the N2, still physically separated from a range of social and economic opportunities in the centre of Riversdale. The distribution and

accessibility of facilities to households living in Kwanonkuthula is explored in Section 5.2.1, and the relationship with the future growth areas of settlement as illustrated by the Municipal HSP and SDF.

4.3.2 Diepkloof (Heidelberg)

Heidelberg is considered to be a second order local node and is viewed as having a moderate growth and development potential, with its main functions described in the Municipal SDF (Hessequa, 2012a) as a tourism and agricultural service centre. The first erven were sold in Heidelberg in 1855, when parishioners living in Swellendam and Riversdale obtained permission to establish a church town along the Duivenhoks River.

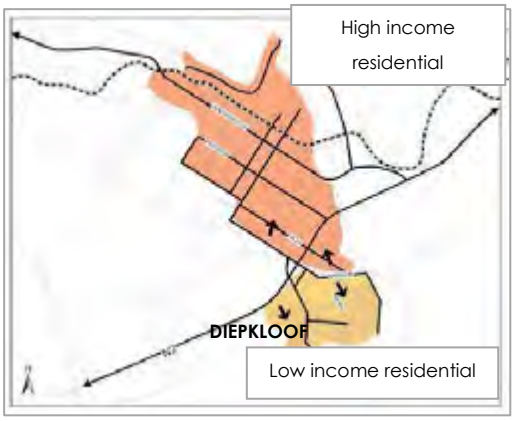

Figure 4.7 Location of the settlement of Diepkloof within the town of Heidelberg (Hessequa Municipality, 2012)

The existing spatial structure of Heidelberg is spatially dissected in terms of race by the N2, segregating the low income community located south of the N2 from the high income community on the north of the N2. Diepkloof, the settlement of relevant for this study is located relatively far from Heidelberg's central business area, requiring that the community crosses over the N2 in order to get into the business node of the settlement. The image below indicates the growth in the number of dwellings in Heidelberg south from 2006 to 2013. It can be seen that most of the dispersed units were present in 2006, with a few additional structures present in 2007 and 2012. Diepkloof is clearly a newer part of Heidelberg town, with a notable number of dwelling units emerging in the 2012 and 2013 dwelling unit counts.

Figure 4.8: Growth of number of dwellings in Diepkloof from (2006 to 2013) (WCDEADP, 2015)

Table 4.6: Heidelberg (incl. Diepkloof) population projections - up to 2020 (Source: PWC, 2014)

Population (2011)	Projected Population 2015		Projected Population 2020	
	High Growth Scenario 1.8% p.a.	Low Growth Scenario 0.57% p.a.	High Growth Scenario 1.8% p.a.	Low Growth Scenario 0.57% p.a.
8259	12451	11853	13624	12196

Table 4.7: Heidelberg household projections [based on PWC (2014) population projections]

Households (2011)	Projected Households 2015		Projected Households 2020	
	High Growth Scenario 1.8% p.a.	Low Growth Scenario 0.57% p.a.	High Growth Scenario 1.8% p.a.	Low Growth Scenario 0.57% p.a.
2503	2690	2560	2943	2634

*Note: **assuming 3.3 people per household (2011 Census)*

There were 781 people on the Hessequa low income housing waiting list for Diepkloof (WCG Department of Human Settlements, 2014). Proposed areas for the expansion of Diepkloof are indicated in the diagram below. Figure 4.7 illustrates the location of the settlement in relation to future areas of expansion as per the HSP and SDF. Section 5.2.2 the relationship between these growth areas and existing facilities are explored.

Figure 4.9: Diagram indicating the options for expansion of Diepkloof as per the Hessequa HSP (Hessequa Municipality, 2012)

4.3.3 Slangrivier

George Napier, Governor of the Cape Colony, gave plots in Slangrivier to twenty households in 1838 on behalf of Queen Victoria to 20 persons as a gesture of thanks for their services during the war of 1834. Following the drought of 1976 attempts were made by the government to relocate the community to Suurbraak, but the residents were not supportive of the proposal. In 1973 the town was registered as a 'coloured agricultural area'.

Slangrivier can be described a fragmented rural town and consists of two settlements that are located relatively far from each other due to the hilly local topography as well as the Slang River that meanders through the settlement, with homesteads peppered throughout the landscape. The rural town is considered a third order node within the Municipal area with limited development potential and limited opportunities for growth. Slangrivier is a rural town (as most of the economically active are employed in the agricultural sector) and is primarily dependant on Heidelberg located 15 km away, for access to higher order services and functions. Slangrivier is dotted with fragmented rural homes (See Figure 4.8), although in recent years the need for low income housing opportunities have resulted in a number of large scale developments, placing a notable change to the rural landscape, evident in the photographs below.

Figure 4.10: Growth of number of dwellings in Slangrivier from 2006 to 2013 (WCDEA&DP, 2015)

Table 4.8: Slangrivier population projections - up to 2020 (Source: PWC, 2014)

	Projected Population 2015		**Projected Population 2020**	
Population (2011)	**High Growth Scenario 1.8% p.a.**	**Low Growth Scenario 0.57% p.a.**	**High Growth Scenario 1.8% p.a.**	**Low Growth Scenario 0.57% p.a.**
3332	1370	1153	1499	1187

Table 4.9: Slangrivier Household projections [based on PWC (2014) population projections]

	Projected Households 2015		**Projected Households 2020**	
Households (2011)	**High Growth Scenario 1.8% p.a.**	**Low Growth Scenario 0.57% p.a.**	**High Growth Scenario 1.8% p.a.**	**Low Growth Scenario 0.57% p.a.**
1010	1085	1033	1187	1063

*Note: **assuming 3.3 people per household (2011 Census)*

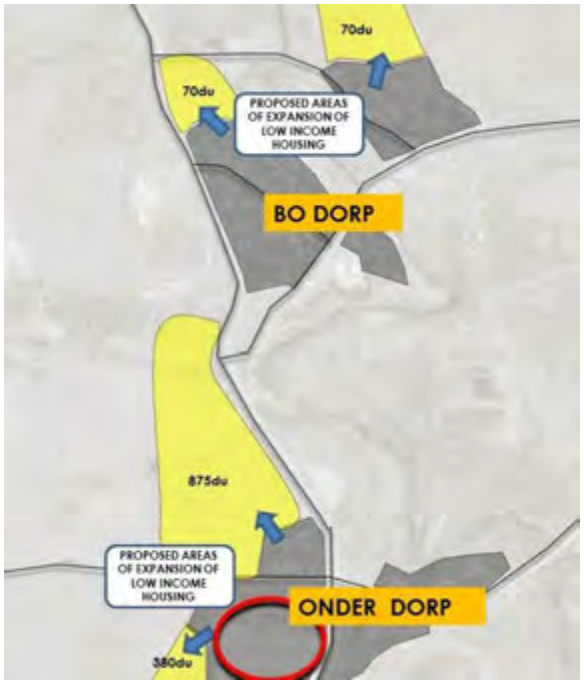

Figure 4.11: Proposed expansion of Slangrivier as per the Hessequa HSP (Hessequa Municipality, 2012b)

As previously mentioned, Slangrivier consists of two parts, referred to locally as 'Bo Dorp' and 'Onder Dorp'. Two developments of 70 units each are proposed for expansions in 'Bo Dorp'. The area relevant to the study is circled in red in Figure 4.9 above. The proposed subsidy housing proposal of 875 units is suggested between the existing two settlements as a means to integrate the two communities in the long term, subject to detailed land survey investigations with a further 520 units in total proposed further north and south of the settlement Ironically the proposals were drafted in full knowledge that there were only 351 people in Slangrivier on Western Cape Housing Demand Database (WCG Department of Human Settlements, 2014).

4.3.4 Melkhoutfontein

Melkhoutfontein is a small rural town with an inter-dependant relationship with the town of Stilbaai, located approximately 8.3km away, and is dependent on higher order functions offered in Stilbaai. Missionaries from the Anglican Church in Riversdale expanded the St. Augustine missionary community in Melkhoutfontein in 1872. However, approximately 90% of its inhabitants are descendants of fisher folk who sustained themselves through small scale subsistence fishing. Unfortunately due to the impact of the depletion of fishing resources, income generation through fishing diminished over the years. There is a glaring absence of employment opportunities within Melkhoutfontein and the limited few that are employed generally earn an erratic income through fishing or as low skilled workforce of the Stilbaai construction and service industries (Hessequa Municipality, 2012a).

Table 4.10: Melkhoutfontein population projections - up to 2020 (Source: PWC, 2014)

Population (2011)	**Projected Population 2015**		**Projected Population 2020**	
	High Growth Scenario 1.8% p.a.	**Low Growth Scenario 0.57% p.a.**	**High Growth Scenario 1.8% p.a.**	**Low Growth Scenario 0.57% p.a.**
2533	2722	2591	2978	2666

Table 4.11: Melkhoutfontein household projections [based on PWC (2014) population projections]

Households (2011)	**Projected Households 2015**		**Projected Households 2020**	
	High Growth Scenario 1.8%	**Low Growth Scenario 0.57%**	**High Growth Scenario 1.8%**	**Low Growth Scenario 0.57%**
768	825	785	903	808

*Note: **assuming 3.3 people per household (2011 Census)*

The image below indicates the dwelling count in the study area from 2006 to 2013. It can be seen that most of the dispersed units were present in 2006. Notable growth is apparent in the north of the settlement which first developed as a small informal settlement but now has been provided with water, sewerage and electricity services on each site.

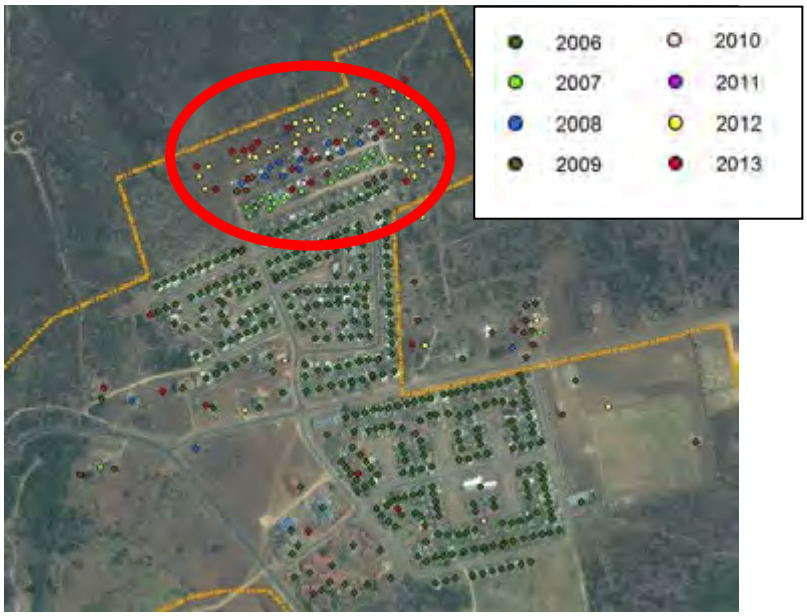

Figure 4.12: Growth of number of dwellings in Melkhoutfontein from 2006 to 2013 (WCG DEA&DP, 2015)

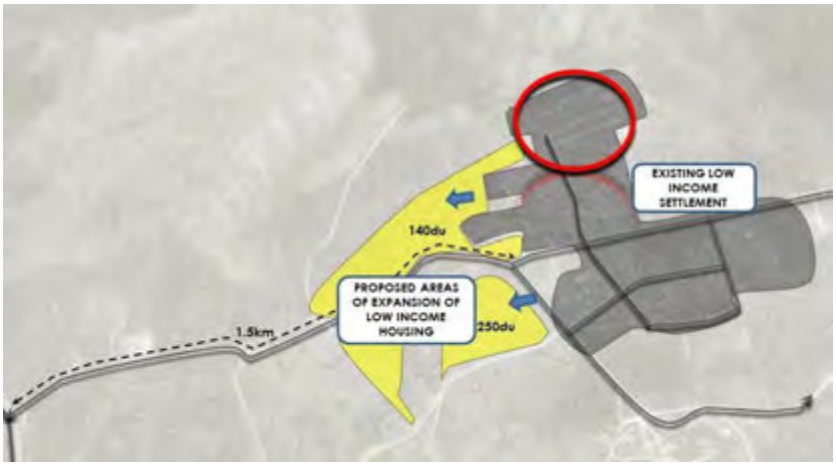

Figure 4.12: Diagram indicating the options for expansion of Melkhoutfontein as contained in the HSP (2012)

Proposed areas for the expansion of Melkhoutfontein are indicated in the diagram above, as sourced from the Hessequa HSP. There were 560 people on the Hessequa low income housing waiting list for Melkhoutfontein as per the Western Cape Housing Demand Database (WCG Department of Human Settlements, 2014).

4.4 Summary of the chapter

This Chapter introduces Hessequa Municipality and provides a contextual analysis of the four settlements chosen as study areas for the purposes of this research namely Kwanonkuthula in Riversdale, Diepkloof in Heidelberg, Slangrivier and Melkhoutfontein. Hessequa Municipality was chosen as a particularly good case study as the low income housing responses has to be applied to varied spatial settlements and demonstrates how rural settlements near rapidly growing urban settlements are particularly vulnerable.

Kwanonkuthula is located on the periphery of the Municipality's highest growth node, namely Riversdale, but is physically separated by the N2. Diepkloof located in Heidelberg, a town described in the GPS as having moderate growth potential and is located adjacent to the N2. In order to access opportunities residents have to cross the N2 which acts as a physical barrier. Slangrivier is a rural settlement which is described in the GPS as having very low growth potential. There are no economic activities of significance in the settlement and the closest business node is located 14kms away in Heidelberg. The settlement is physically fragmented in two distinct north and south settlements and the area relevant to this study is located in the southern settlement. Melkhoutfontein is a small, isolated settlement located approximately 8.3km from Stilbaai and 35km from Riversdale. The GPS considers the settlement to have less growth potential than Slangrivier.

The analysis in this chapter has revealed that the four settlements have very different spatial characteristics, although 88% of the housing demand for the entire Municipality is concentrated in these four, very different settlements with varying degrees of accessibility to economic opportunities. Information from the municipality's SDF and HSP is included to indicate how the municipality intends to grow. The analysis highlights that in some settlements there is a disjuncture between the housing demand and the areas designated for future low income housing, particularly in Slangrivier. The chapter that follows will consider how the location of the new housing opportunities relates to existing economic and social opportunities.

Chapter 5: Data analysis and findings

5.1 Introduction

The chapter that follows describes the findings of the data analysis using he research methods described in Chapter 3. This chapter is important as it provides a basis from which conclusions that are drawn to answer the research question which reads "How do different types of locations impact on the ability of low income households to access economic and social opportunities in terms of financial and social costs?" Firstly, the mapping of the findings of the analysis of existing facilities will be illustrated with a series of maps and the findings of the survey questionnaire will be discussed.

5.2 Existing facilities accessed by households

Data pertaining to existing facilities accessed by households living in the four settlements was obtained through document analysis, structured and unstructured interviews with officials at provincial and local government as well as direct observations during site visits. For mapping and analysis purposes the followings symbols were assigned to the facilities that were to be assessed:

Table 5.1: Table indicating symbols assigned graphically represent various facilities

Facility	Public Secondary Schools	Public Primary Schools	Comm. Health Centre	Police Station	Crèche	Municipal Office to pay for services	Library	Social grant pay-out point	Community Hall
Symbols									

5.2.1 Kwanonkuthula

Although Kwanonkuthula is not that far from the main business hub in Riversdale, which is described in the GPS (WCG DEA&DP, 2014) as having a high growth potential, with the exception of a crèche and small community centre, the settlement is purely low income residential and households have to venture across the N2 in order to access facilities. Although the measured distance may appear manageable, school going children are particularly vulnerable and the stretch of the N2 crossed by residents is also synonymous with a high accident rate. There is limited surveillance along the tree-lined route between the settlement and the N2 and poses a

security threat to pedestrians, particularly to women, children and the aged. The settlement is also closely located to the industrial area, and would benefit once the industrial areas become more active.

The Panorama and Gerrit Du Plessis schools in Riversdale caters for learners from Kwanonkuthula as well as learners as far afield as Melkhoutfontein who travel via subsidies learner transport over a distance of 70km per day to reach these schools.

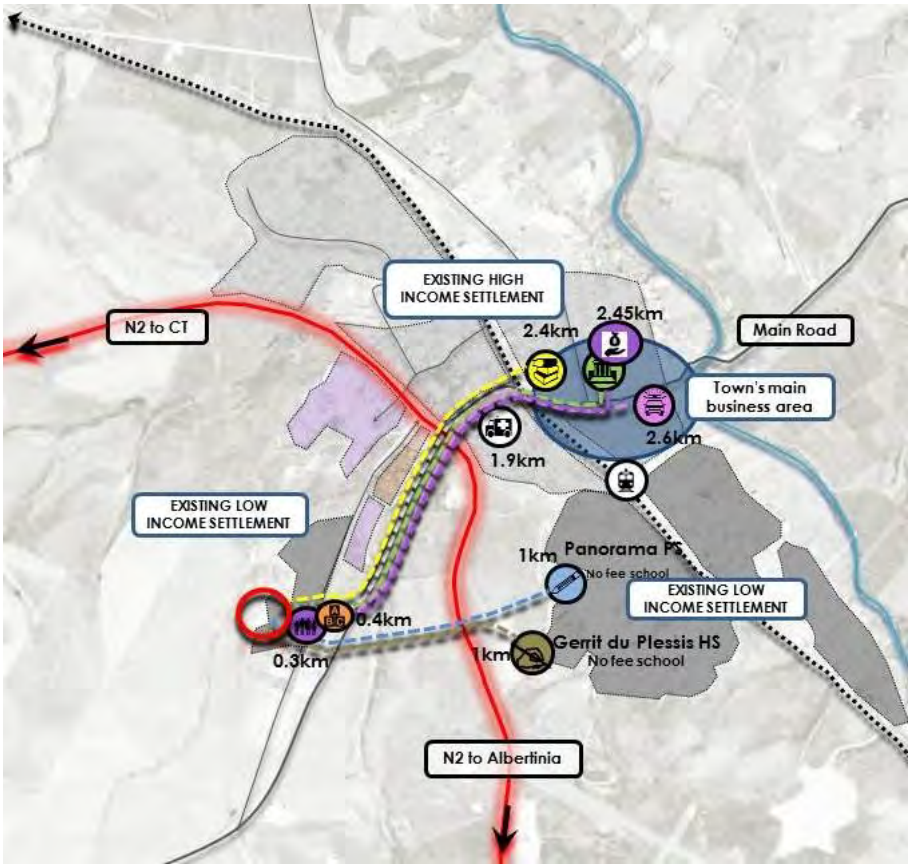

Figure 5.1: Map indication distribution of facilities accessed by households of Kwanonkuthula in relation to Riversdale town

The analysis indicates that although there are limited facilities in immediate walking distance of households, they have access to a large number of facilities on the other side of the N2. Due to safety concerns a subsided transportation service is offered to learners to get to school, although a number of students still choose to cross the N2 to reach schools. This transportation is subsidised by the Department of Education.

Figure 5.2: Map indication distribution of facilities accessed by households of Kwanonkuthula

Table 5.2: Distance from area surveyed in relation to facilities (Kwanonkuthula)

Facility									
Distance from settlement	1km	1km	1.9km	2.6km	0.4km	2.45km	2.4km	2.45km	0.3km

Figure 5.2 indicates access to facilities in walking distance of Kwanonkuthula at a local scale and shows how the Human Settlement Plan (Hessequa, 2012b), foresees the growth the settlement. It becomes apparent that even though there are insufficient facilities to cater for the existing settlement, further expansion of the settlement is proposed.

5.2.2 Diepkloof

Although fragmented from the rest of Heidelberg by the N2, the low income Diepkloof settlement has a well-resourced cluster of facilities in walking distance of residents. The main facilities accessed on the other side of the N2 are the police station, municipal office and train station. Kairos High School is located less than 1km from the settlement. However learners as far from Slangrivier travel in excess of 30km daily to and from Kairos High School.

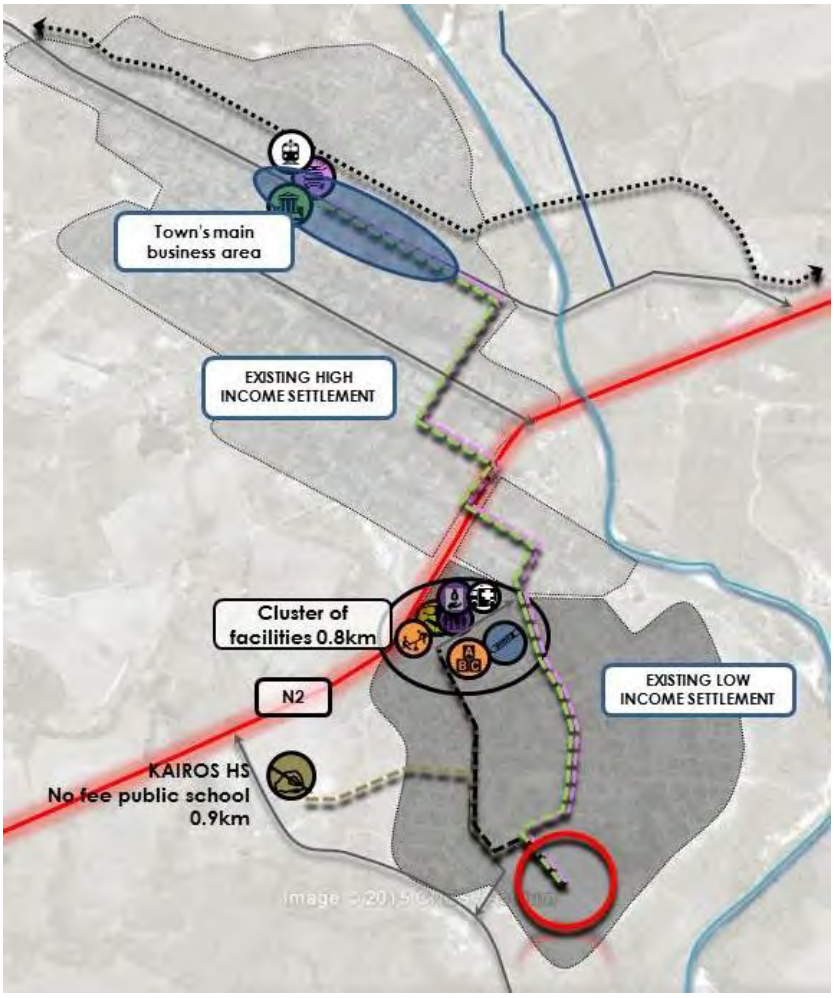

Figure 5.3: Map indication distribution of facilities accessed by households of Diepkloof in relation to Heidelberg

Table 5.3: Distance from area surveyed in relation to facilities (Diepkloof)

Facility									
Distance from settlement	0.9km	0.5km	0.8km	2.5km	0.5km	2.5km	0.8km	0.8km	0.8km

The Municipal HSP (Hessequa Municipality, 2012b), indicates that further expansion of the settlement to the west. Although the development could be considered peripheral, residents' accessibility to facilities are quite good and the expansion of the settlement would allow that more residents benefit from this locational advantage and proximity to facilities.

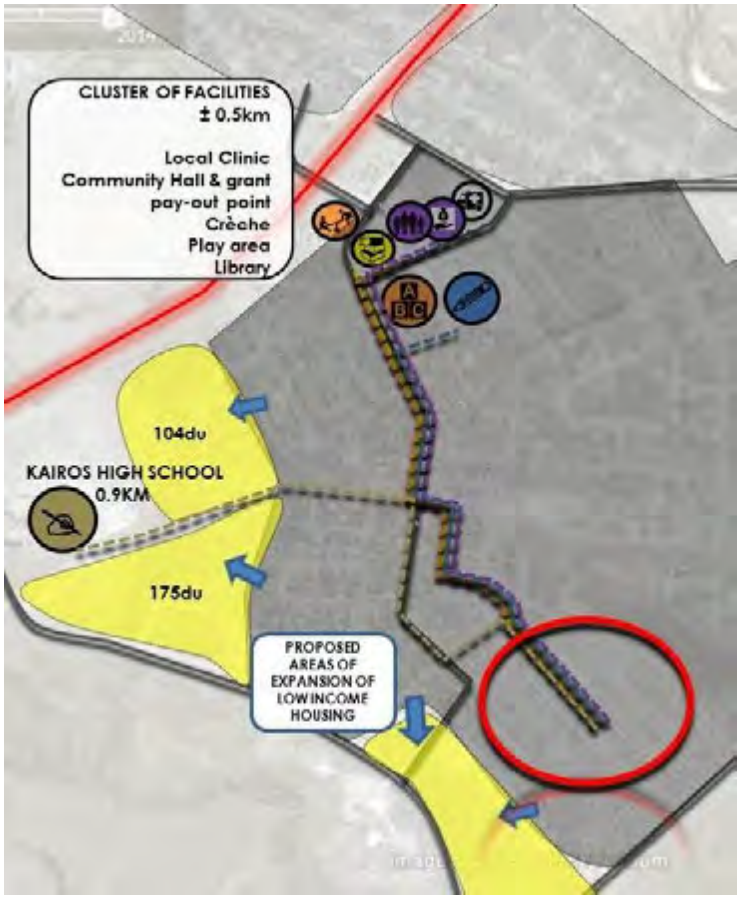

Figure 5.4: Map indication distribution of facilities accessed by households of Diepkloof

Figure 5.4 shows access to facilities in walking distance of Diepkloof at a local scale and with a higher detail showing areas of expansion as per the Human Settlement Plan (Hessequa, 2012b). The areas indicated for future residential expansion and will benefit from good access to the existing cluster of facilities already located in walking distance of the settlement including schools, a clinic, community hall, crèche and library.

5.2.3 Melkhoutfontein

Melkhoutfontein is a rather isolated, low income settlement located approximately 35km from the highest order business node in the Municipality, that is, Riversdale. On the other hand the settlement is located about 8km from Stilbaai, a major place of employment to residents of Melkhoutfontein. The main concern is that high school learners have to travel a total of 70km to and from school daily as there are no other options to learners from this settlement.

Figure 5.5: Map indicating distribution of facilities accessed by households of Melkhoutfontein in relation to Stilbaai

Table 5.4: Distance from area surveyed in relation to facilities (Melkhoutfontein)

Facility									
Distance from settlement	35km	1.8km	0.5km	8km	0.5km	0.5km	0.5km	0.5km	0.5km

The settlement has been provided with an array of public facilities that can be accessed by residents within walking distance of their homes. These include a primary school, crèche, several churches, clinic, satellite municipal office, library, community hall which also serves a social grant pay out point. The primary school is located 1.8km from that portion of the community who were later surveyed, and although the distance is not that lengthy, learners have to walk quite a distance along rather deserted open spaces. However a paved pedestrian route and lighting was introduced to improve pedestrian safety along the path.

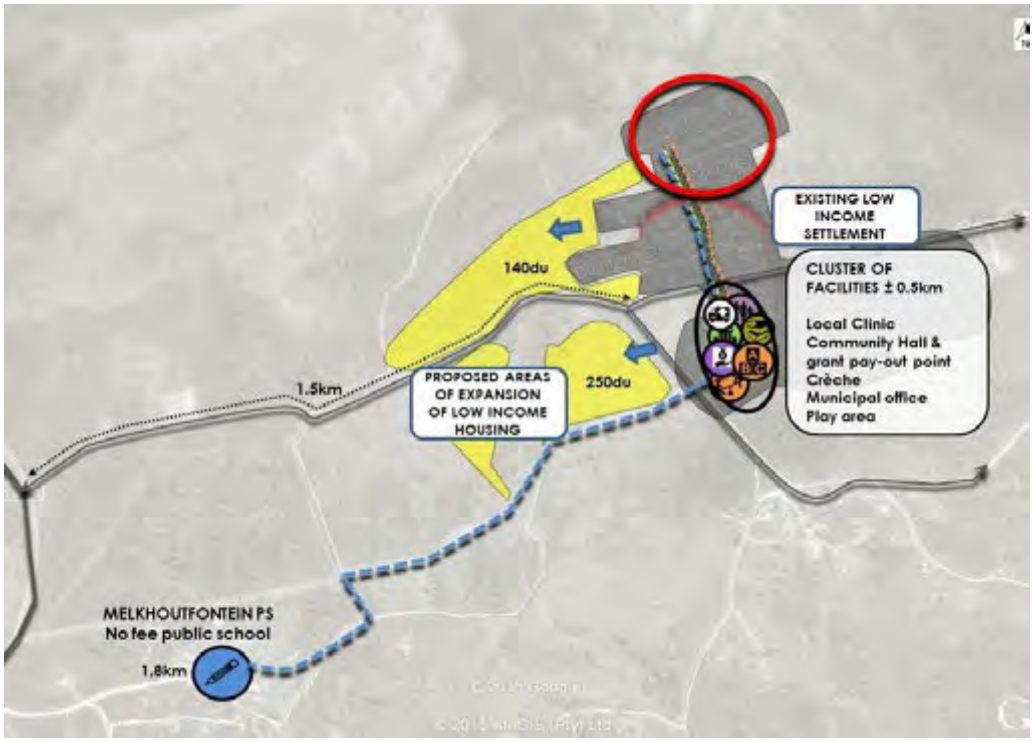

Figure 5.6: Map indicating the distribution of facilities accessed by households of Melkhoutfontein

Figure 5.6 indicates access to facilities in walking distance of the Melkhoutfontein at a more pronounced scale, with a higher detail, showing areas of expansion as per the Human Settlement Plan (Hessequa, 2012b). The areas indicated for future residential expansion and will benefit from good access to the existing cluster of facilities already located in walking distance of the settlement including the primary school, clinic, community hall, crèche and library (with the exception of a high school which is located 35km away in Riversdale).

5.2.4 Slangrivier

Slangrivier is a rural settlement located more than 15.5km from Heidelberg, where residents travel to do fulfil higher order needs. The settlement can be described as long and spatially expansive, therefore facilities provided in a clustered manner is only available to a limited number of residents. This cluster of facilities is located approximately 1.5kms from the residents participating in this survey. Households stemming from that part of the settlement that was surveyed have to travel at least one hour on foot to reach the cluster of facilities. There is no high school in the settlement and learners are transported to a high school about 15km away on a daily basis. This transportation is subsidised by the Department of Education.

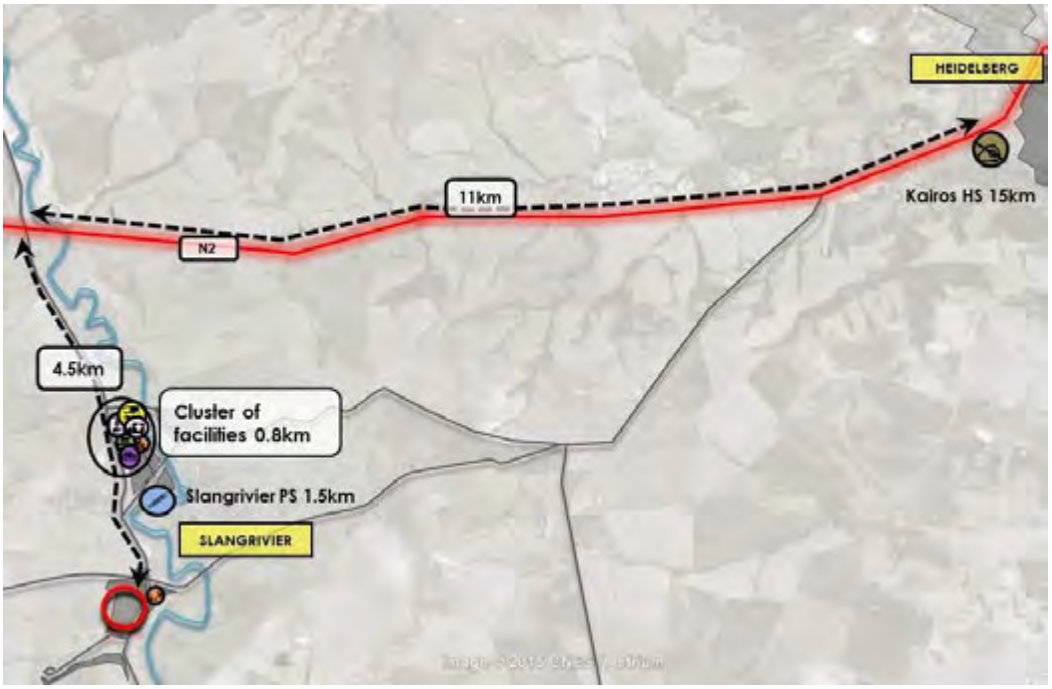

Figure 5.7: Broader indication of location of facilities in relation to Slangrivier and Heidelberg

Table 5.5: Distance from area surveyed in relation to facilities (Slangrivier)

Facility									
Distance from settlement	15km	1.5km	1.8km	15km	1.8km	1.8km	1.8km	1.8km	1.8km

Figure 5.7, read with Table 5.5 highlights that residents who were surveyed are quite separated from facilities provided in Slangrivier, which are located between 1.5 and 1.8kms away. The landscape between the settlement and the cluster of facilities further north is also rather undulating and particularly challenging to the very young and the aged. Furthermore the fragmented nature of the settlement characterised by sporadic and isolated homesteads means that for women the walk proves particularly unsafe. Learners also have to travel in excess of 15km to access the closest high school which is in located in Heidelberg.

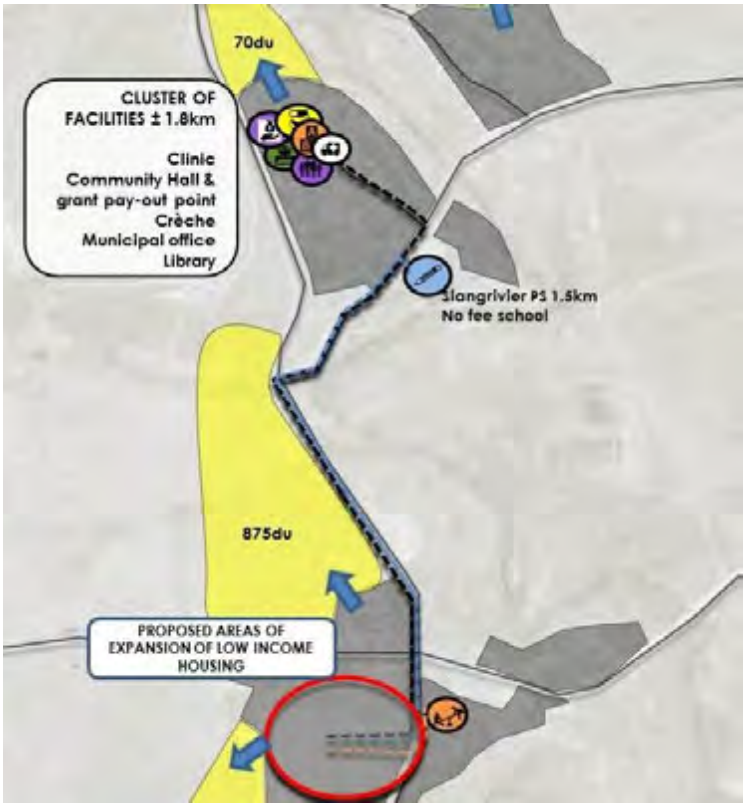

Figure 5.8: Map indication location of facilities in relation to location of the settlement

Figure 5.8 indicates access to facilities in walking distance of the Slangrivier, in better detail, and shows the areas designated for residential expansion as per Human Settlement Plan (Hessequa, 2012b). Although the areas indicated for future residential expansion is better situated in relation to the existing cluster of facilities, the planning for over 875 low income housing opportunities can best be described as excessive when the demand for housing in this settlement was estimated as being as 43 units in 2014 (WCG Department of Human Settlements, 2014).

5.3 Survey findings

The findings of the survey questionnaire described in Section 3.3 are described in this section. As previously mentioned 20 households each of the four settlements were interviewed, that is, households in Kwanonkuthula, Diepkloof, Slangrivier and Melkhoutfontein. The images below give an approximate spatial indication of where households who were surveyed are located within each settlement.

Figure 5.9: Approximate location of households surveyed in Kwanonkuthula

Figure 5.10: Approximate location of households surveyed in Diepkloof

Figure 5.11: Approximate location of households surveyed in Slangrivier

Figure 5.12: Approximate location of households surveyed in Melkhoutfontein

5.3.1 Background to households surveyed

As previously mentioned, the history and age of the four settlements vary, although all housing referred to in this study was allocated post 1994. The earliest occupation of state housing occurred in Melkhoutfontein in 1996, while the most recently occupied homes were allocated in 2015 in Kwanonkuthula.

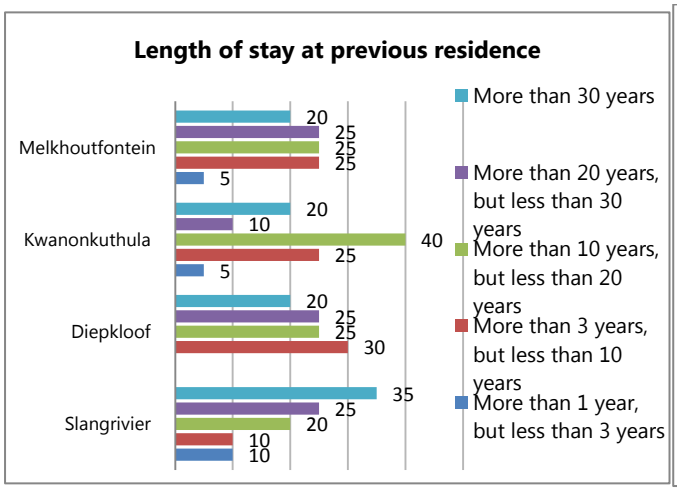

Figure 5.13: Comparative length of stay at previous residence type

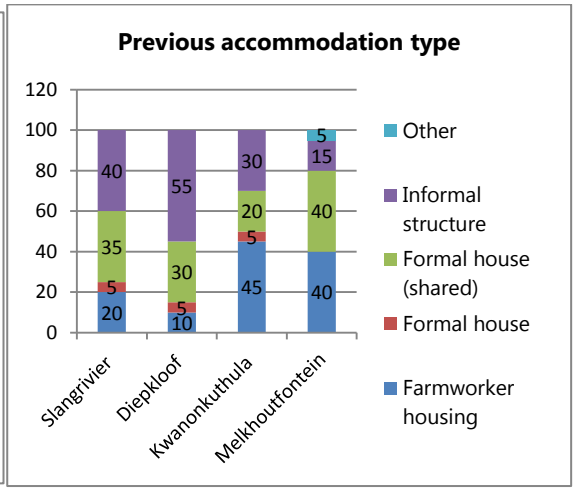

Figure 5.14: Comparative view of previous accommodation

Figure 5.13 indicates that 35% of households from Slangrivier have been residing at their previous residence for more than 30 years before they were allocated state housing and 20% of households in Diepkloof, Kwanonkuthula and Melkhoutfontein reported the same experience. Figure 5.14 suggests that Melkhoutfontein and Kwanonkuthula also had the highest percentage of respondents who previously lived in farmworker housing. Diepkloof and Slangrivier had the highest percentages of households living in informally constructed homes.

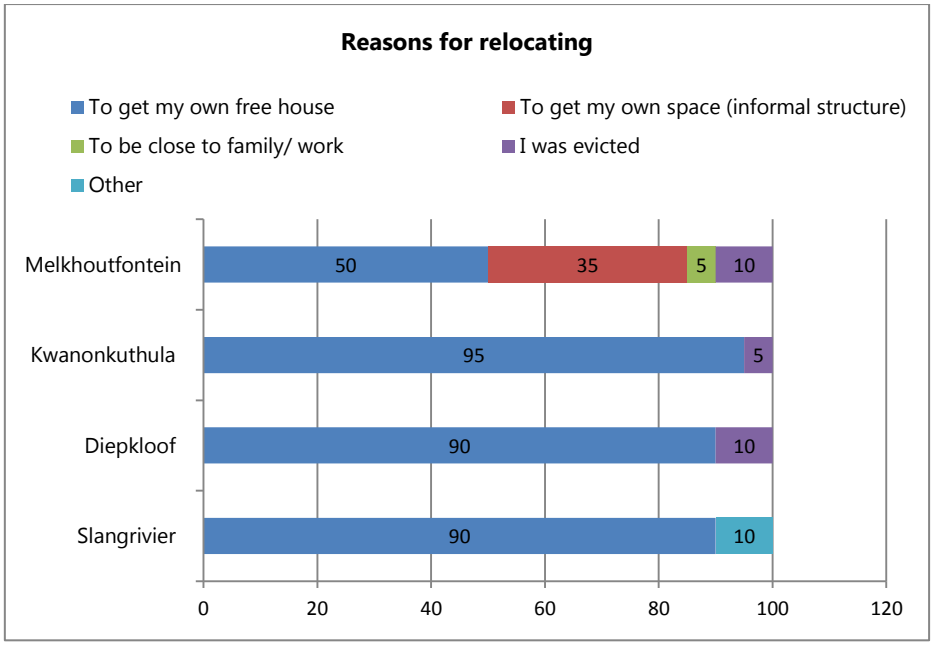

Figure 5.15: Comparative view of reasons for relocating

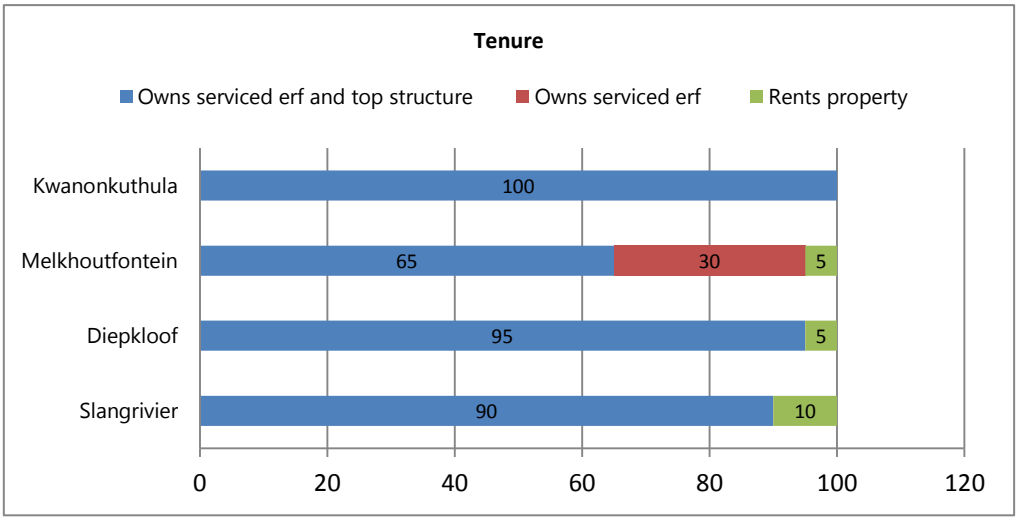

Figure 5.16: Comparative view of the ownership trends in the four settlements

As agriculture is the main employment sector within the municipality, it was previously assumed that the reasons for relocating due to farm evictions would be significant in Hessequa Municipality; however the survey found that on average, eviction was the reason for relocating in about 9% of the four settlements (See Figure 5.15). The main reason why the majority of beneficiaries have relocated to these specific settlements was because of the offer of cost free house (with the exception of parts of Melkhoutfontein). The interviews revealed that residents' desire to own land was so immense, that the locality of the housing opportunities are not considered consequential, in case their dissatisfaction would mean losing out on an opportunity for a free house. The difference in Melkhoutfontein is attributed to the fact that some of the households interviewed were previously living in informal housing settlement north of the settlement; however this housing has since been upgraded to

serviced stands. These residents who constructed the informal shelters previously lived in formal housing in Melkhoutfontein but have moved out as they started their own families and their needs for space changed. This subsequently led to the establishment of a small informal settlement.

Overall, most households interviewed own their homes while small percentages rent the property. Thirty percent of the households surveyed in Melkhoutfontein are housed on serviced erven provided with water connection, electricity and sewerage services and an informal top structure (See Figure 5.16).

5.3.2 Household composition

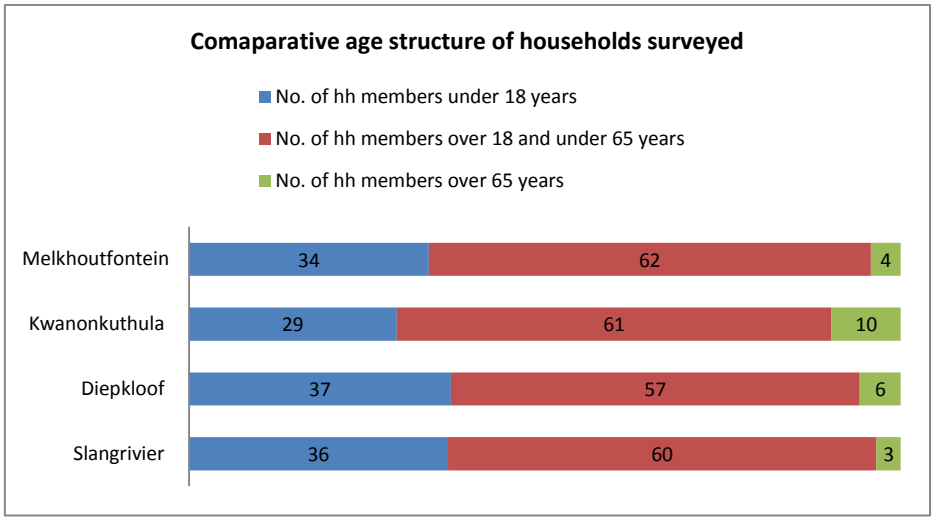

Figure 5.17: Comparative age structure of households

Figure 5.17 above indicates a similar household age structure across the 4 settlements with an average of 60% of household members falling within the economically active age (between and 65 years of age), who may have to incur some form of expenditure to get to work if they were employed. An average of about 34% of households comprise of dependents younger than 18 years while an average of 6% of households are older than 65 years of age.

5.3.3 Employment trends

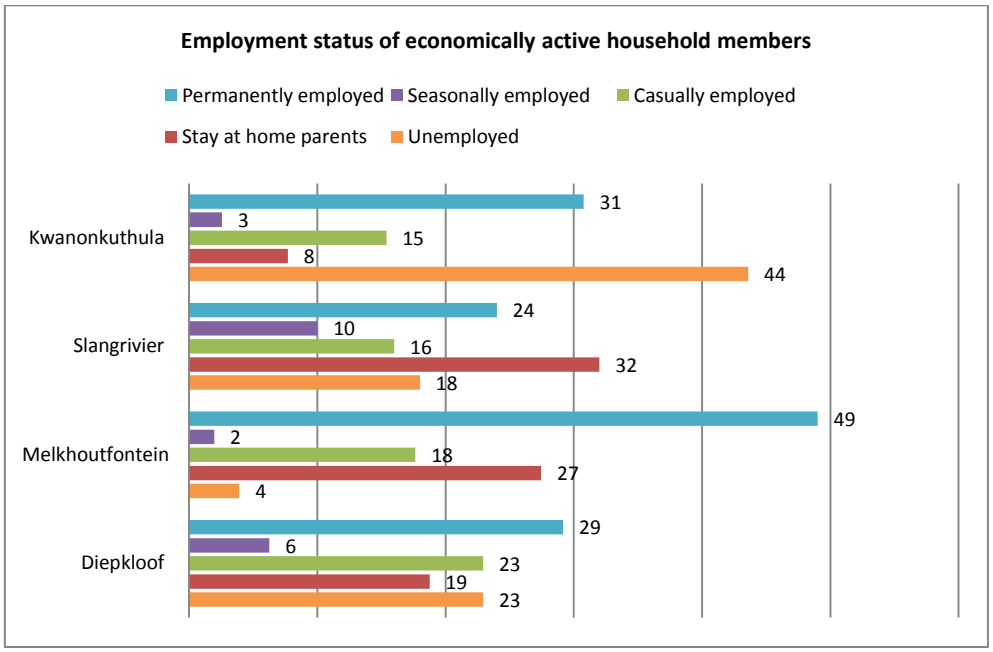

Figure 5.18: Employment status of economically active portion of population

Figure 5.18 above indicates that Melkhoutfontein has the highest proportion of permanently employed people and the lowest proportion of unemployed people amongst the four settlements. Kwanonkuthula showed the highest proportion of unemployed people (44%) followed by Diepkloof (23%). An average of 16% of the economically active in each of the four settlements is casually employed. Slangrivier has the highest percentage of seasonally employed persons which relates to the work on farms in the vicinity.

5.3.4 Household income

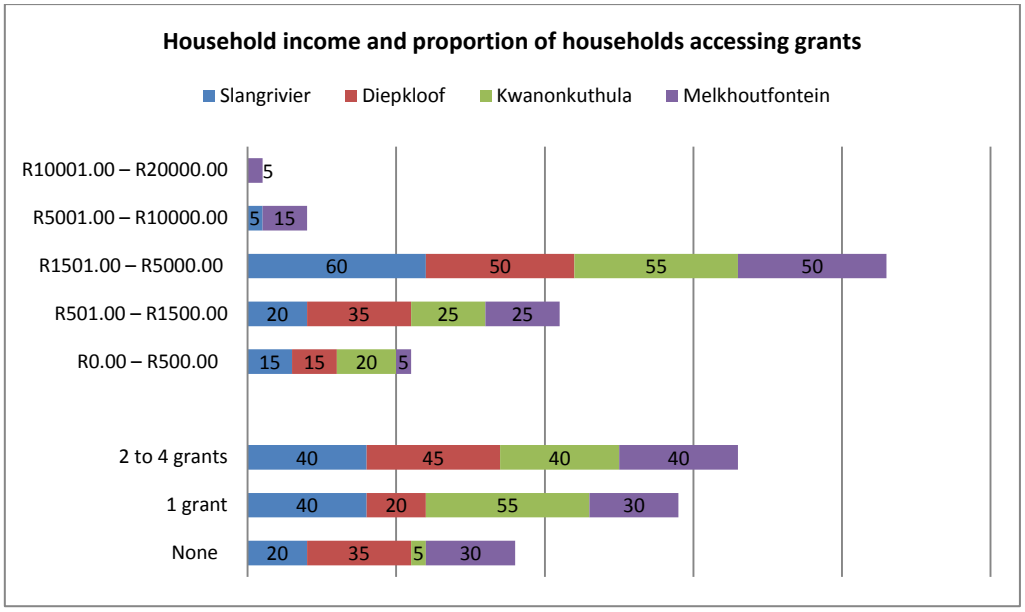

Figure 5.19: Comparative overview of household income and dependence on grants

An average of 54% of all households surveyed earns between R1501 and R5000 per month and an average of 40% of households earn between R0 and R1500 per month. This suggests that household incomes within the four settlements are generally very low. The low levels of income are supplemented by high levels of dependence on social security grants such as child support, old age pension and disability grants. More than 40% of households in each settlement access 2 to 4 grants every month. In Kwanonkuthula, the settlement with the highest unemployment rate, 95% of households access grants on a monthly basis.

5.3.5 Transportation to work

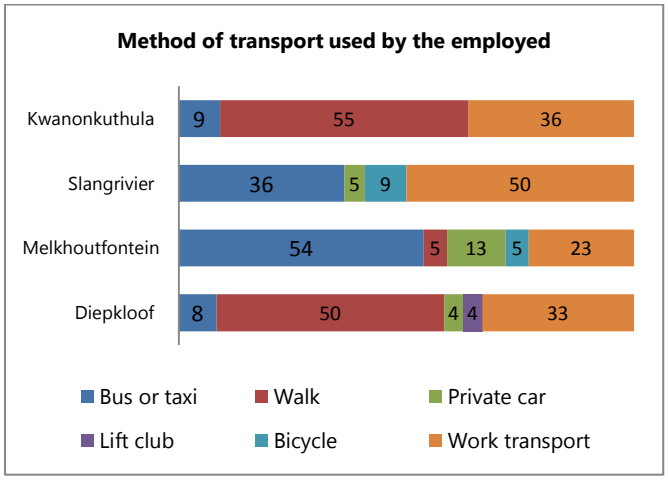

Figure 5.20: Comparative view of the types of transportation used by the employed to get to work

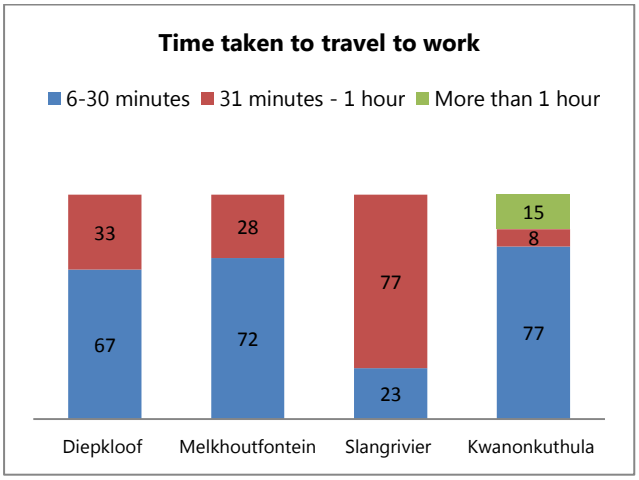

Figure 5.21: Comparative view of the time travelled by those employed to get to work

As per figure 5.20, Diepkloof and Kwanonkuthula are the two settlements in which most of the employed walk to places of work as the distance to place of work is reasonable. Mini bus taxis and buses are most frequently used in Melkhoutfontein and Slangrivier. 9% and 5% of the employed in Slangrivier and Melkhoutfontein cycle to work respectively. In Slangrivier commuters making use of public transport (around 36%), spend around R40 per return trip per day which differs according to the work frequency of work (many are employed on a casual/ seasonal basis). In Slangrivier there is an interesting experience where a farmworker travels to work by private car on a weekly basis and only returned home on weekends in order to minimise costs.

Kwanonkuthula is the only settlement in which employees travel for more than one hour to work, as they travel to Stilbaai, approximately 43kms away. Some employees are offered employee transportation travel to work in one hour or less In Slangrivier 50% of the employed are collected for work by their employee and incur no costs to travel to work. Most farmworkers employed in Slangrivier are collected by farmers on either a daily or weekly basis and are transported between 31 and 60 minutes to get to work. Farmworkers leave their families on a Sunday afternoon and return home on Friday evenings. With the exception of Slangrivier, the around 72% of those employed in the remaining three settlements only travel between 6 and 31 minutes to get to work. In Slangrivier 77% of the population who are employed travel between 31 and 60 minutes to get to work.

5.4 Observations at a settlement level

5.4.1 Slangrivier

5.4.1.1Costs and time incurred by households in Slangrivier to access to facilities

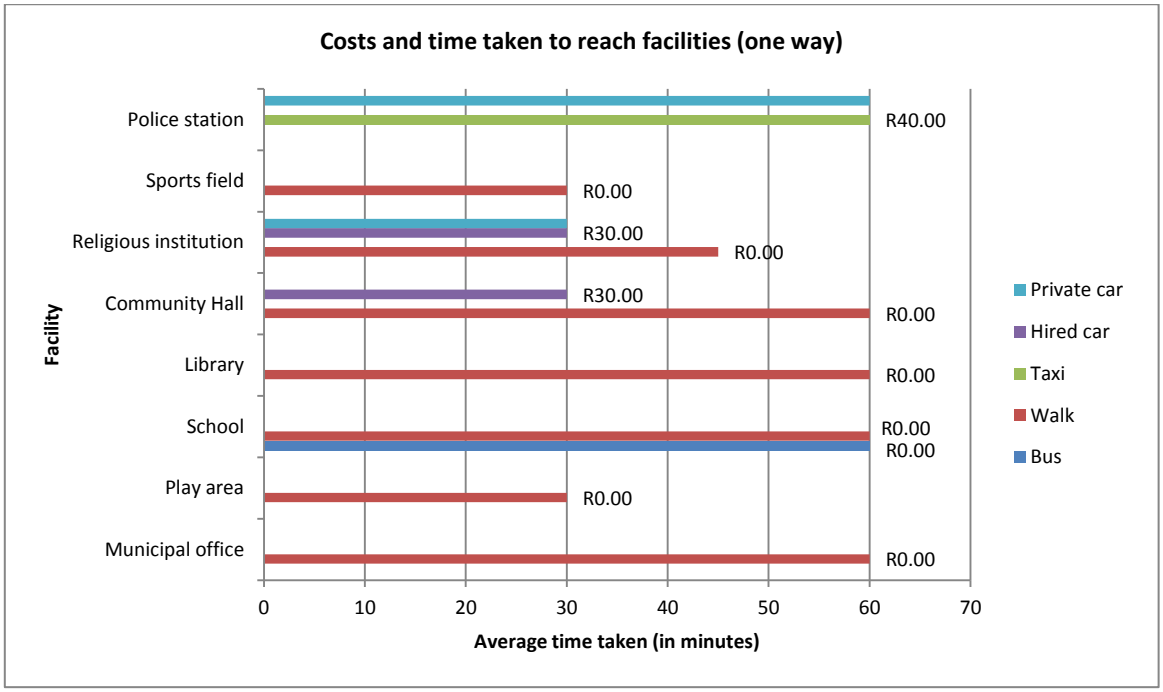

Figure 5.22: Costs and time incurred by households in Slangrivier to access facilities

The municipal office is located in the more established part of Slangrivier, and is thus more than an hour walk for residents surveyed to access to the facility. Elderly residents who simply cannot walk incur a cost of R30 for a one way trip to the facility in order to collect their pay-out or visit the local clinic. The municipal office is an important facility within the settlement as it is where residents purchase water and electricity. The community hall is often used and plays an additional role of a grant pay out point.

Families (particularly the aged) do incur an expense to travel to get to church, but the number of people who can attend is limited due to the cost and the space available in the hired car. This service is usually offered by the few neighbours who own a car in order to generate additional income. Learners are able to access a primary school about one hour away and have to travel in groups in order to ensure safety. There is no high school in the vicinity and learners have to travel by state subsidised learner transport for about 15km to Heidelberg.

5.4.1.2 Slangrivier: perceived effect of relocation on the households access to facilities

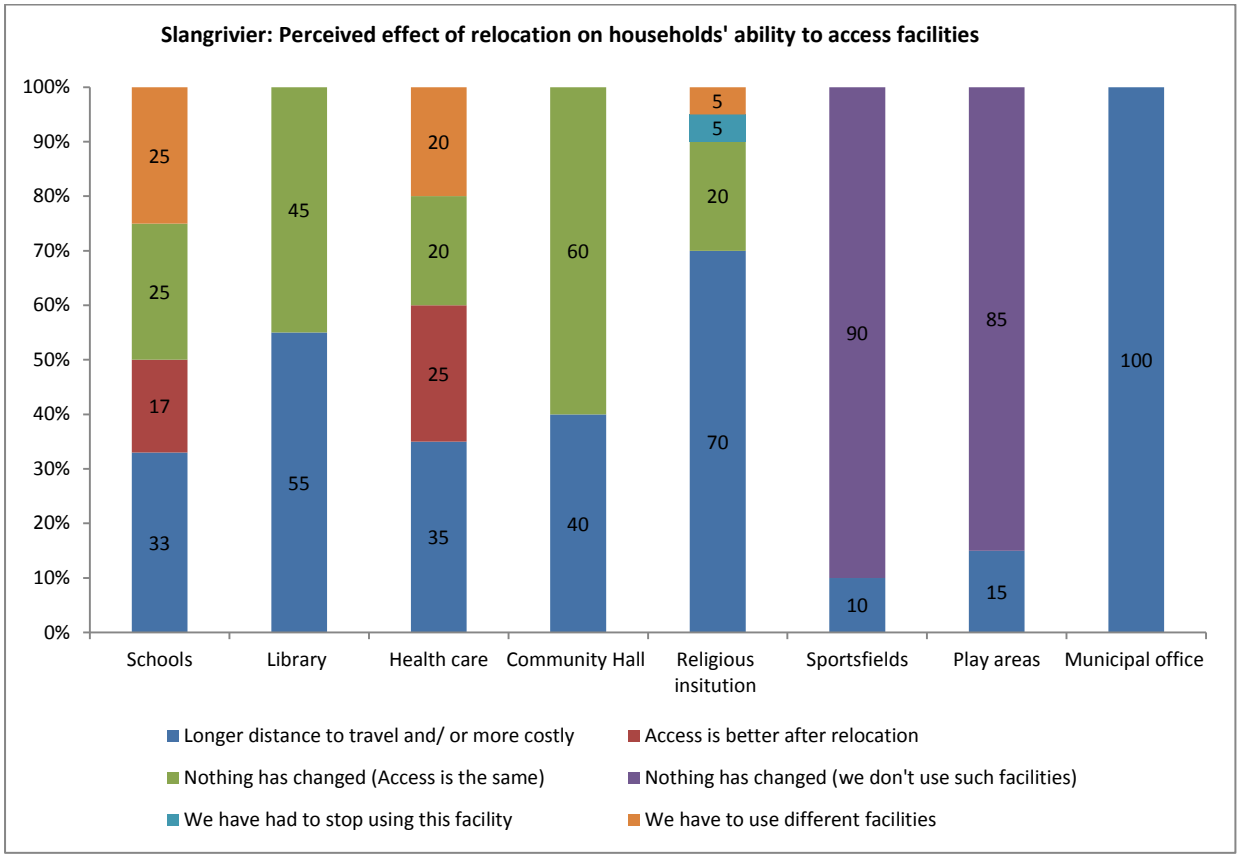

Figure 5.23: Perceived effect of location on the households' ability to access facilities (Slangrivier)

The figure above indicate that residents surveyed to either no longer make use of facilities or have to travel longer distances than they previously had to travel. However, the reasons for not utilising facilities are not always related to access, in some instances households are not interested in accessing facilities available such as sports fields and the community hall or have an older family structure and do not make use of schools and play areas.

Interviews revealed that all people of Slangrivier have to travel long distances and pay money to get to Heidelberg in order to have access to a police station to report a crime, certify copies, etc. Poor cellphone reception makes contacting the police or ambulance in an emergency very difficult for residents.

5.4.2 Diepkloof

5.4.2.1 Costs and time incurred by households in Diepkloof to access to facilities from new homes

Figure 5.24: Costs and time incurred by households in Diepkloof to access facilities

Most residents in Diepkloof can access a number of public facilities on foot within 30 minutes as facilities have been liberally provided in a cluster at the entrance of the settlement. Residents access the municipal office in Heidelberg, predominantly by foot. Households make their monthly visit to town an important outing and combine the collection of grant, purchasing of groceries and payment of services with this visit. This also ensures that costs are minimised. Usually two members of the household will walk up to town and return via taxi (@R12pp) with their goods purchased. If they simply do not have money, they travel on foot to and from town.

5.4.2.2 Diepkloof: perceived effect of relocation on the household's access to facilities

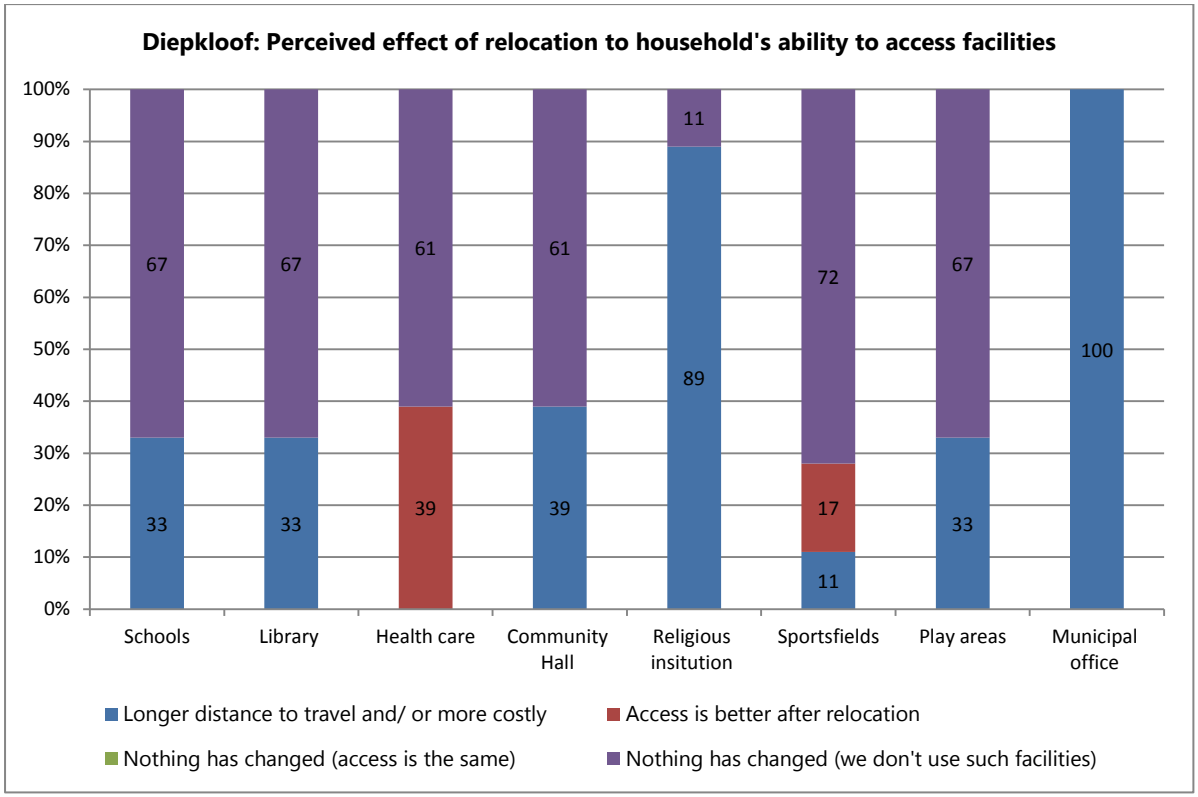

Figure 5.25: Perceived effect of location on the households' ability to access facilities (Diepkloof)

Some respondents surveyed previously lived on the other side of the N2 where access to churches, community hall and library used to be in closer proximity to where they live, therefore they consider the distance to be longer since their relocation. Respondents interviewed reported that children do not make use of play facilities as they prefer to allow the kids to play at home where their safety can be monitored. It must be noted that some residents choose not to make of facilities as they are not relevant to their family structure (such as schools) or they are simply not interested in making use of the facility.

5.4.3 Kwanonkuthula

5.4.3.1 Costs and time incurred by households in Kwanonkuthula to access to facilities from new homes

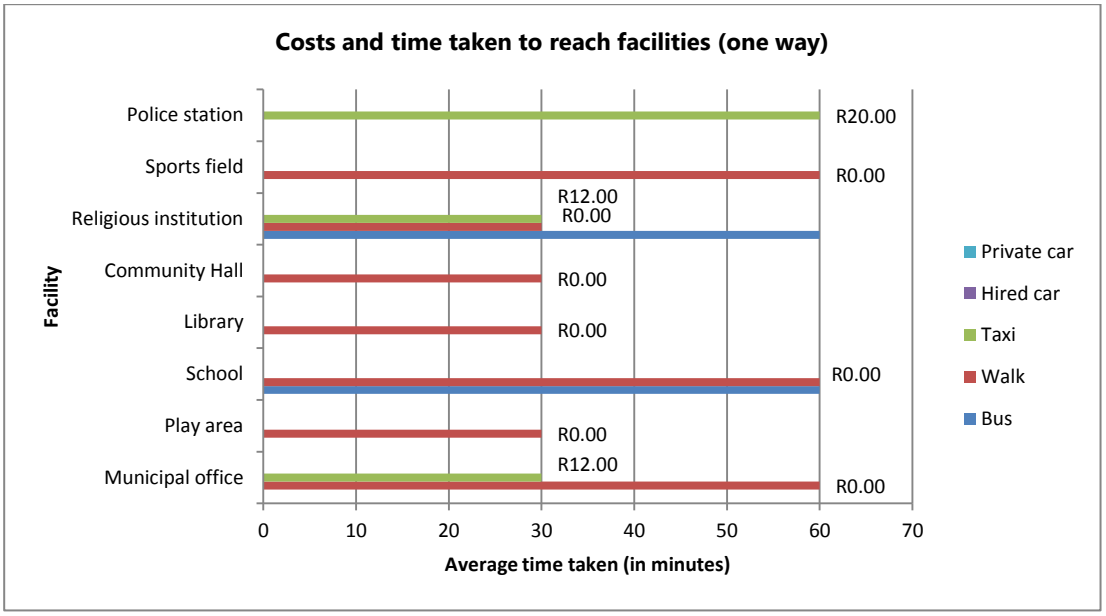

Figure 5.26: Costs and time incurred by households in Kwanonkuthula to access facilities

Residents access most facilities on foot with the exception of the police station, municipal office and religious institutions. The trip to the municipal office is related to the collection of grants and the payment of municipal services and is done on a monthly basis.

5.4.3.2 Kwanonkuthula: perceived effect of relocation on the household's access to facilities

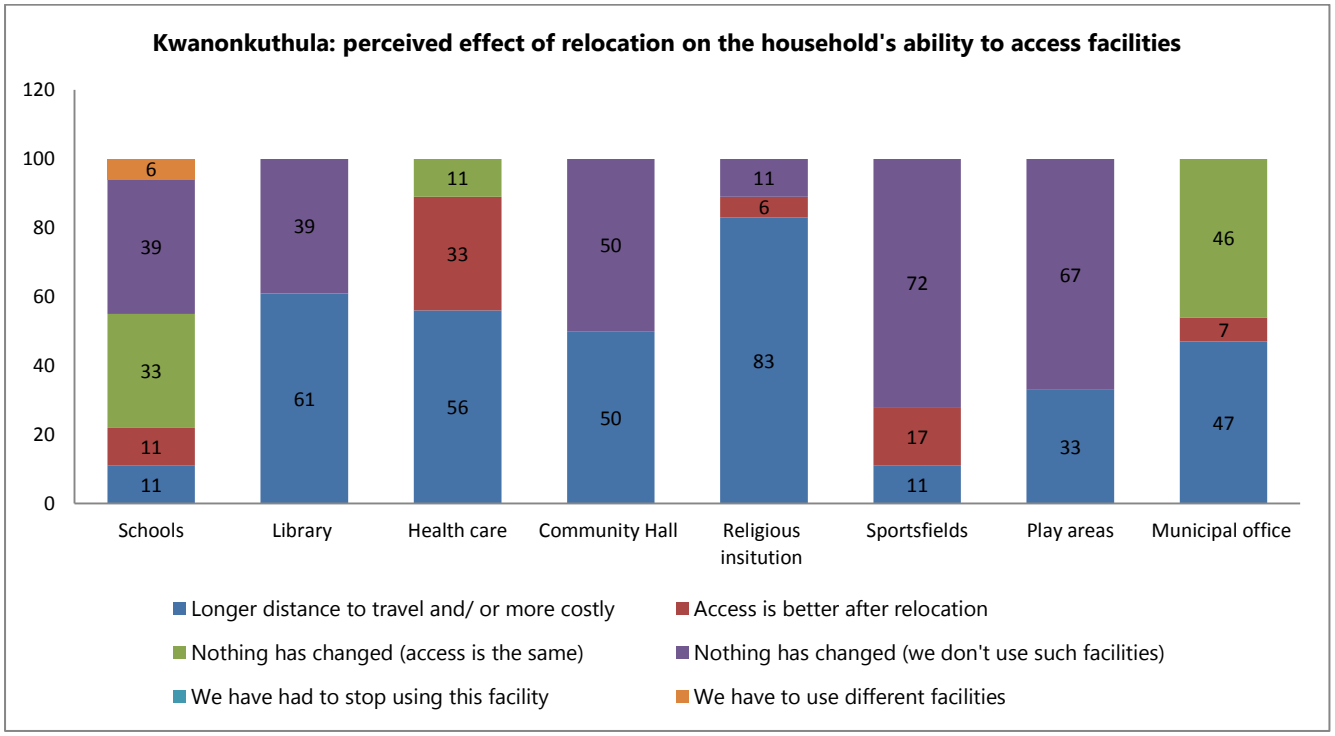

Figure 5.27: Perceived effect of location on the households' ability to access facilities (Kwanonkuthula)

Again, the survey reveals that some facilities are not necessarily relevant to all households. Distances to facilities has definitely increased for most residents as they previously lived on the other side of the N2 in walking distance of churches, the clinic and library, etc. On the other hand, for residents who previously lived on farms and smallholdings, perceive that access to facilities has improved. Access to the Municipal office is considered important as this this the place where services are paid for. Parents prefer that children play in close vicinity to their homes where they can be monitored. Most residents did not consider the need for a sports field important as children access such facilities during school hours.

The police station in Riversdale services Kwanonkuthula but residents have to find their way to the main town to access this facility, either by walking or incurring travel costs. Like other settlements the monthly shopping visit to town is usually coordinated with the payment date of grants in order to minimise the number and cost related to these trips.

5.4.4 Melkhoutfontein

5.4.4.1 Costs incurred by households in Melkhoutfontein to access to facilities from new homes

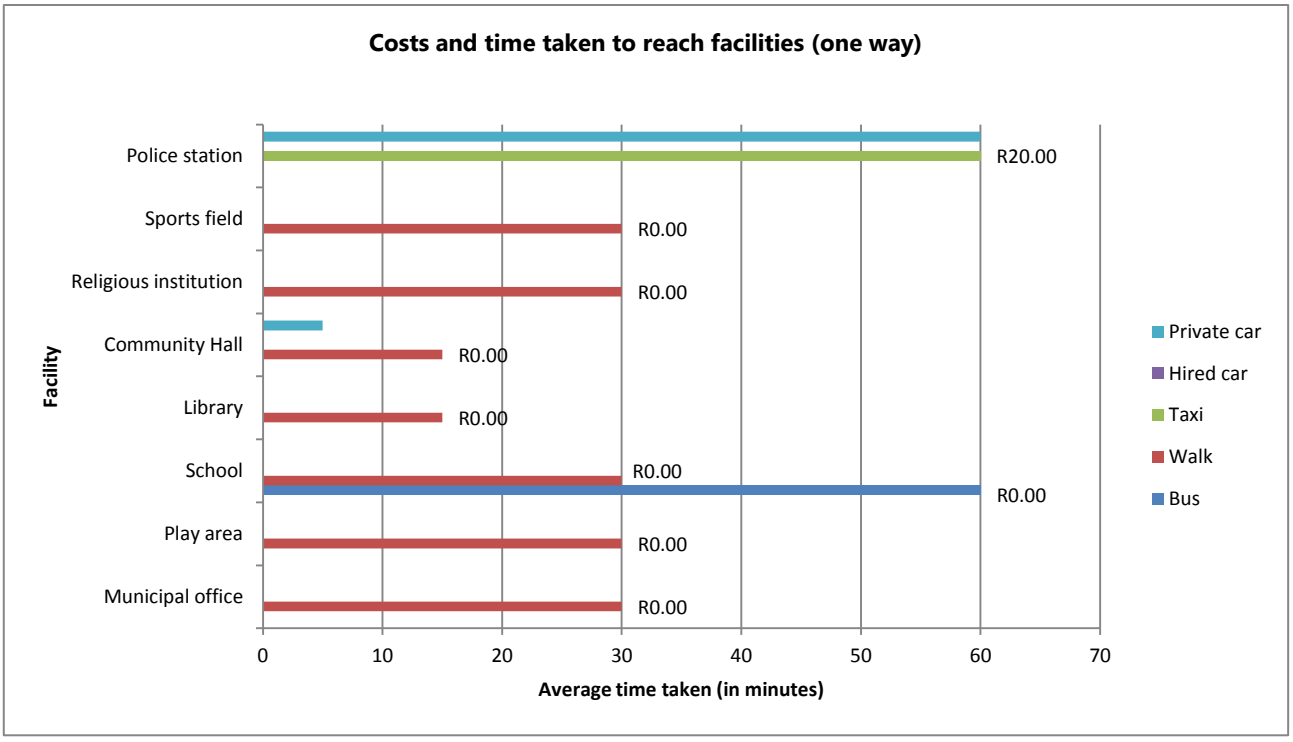

Figure 5.28: Costs and time incurred by households in Melkhoutfontein to access facilities

Households in Melkhoutfontein are fortunate to have been provided with a range of facilities in walking distance of the settlement therefore incur no costs to access these facilities. The exception is that of the police station located about 8kms away in Stilbaai, although police do regular patrols through the settlement. The main concern is that the closest high school is 35km away in Riversdale, approximately an hour's bus drive away.

5.4.3.2 Melkhoutfontein: perceived effect of relocation on the household's access to facilities

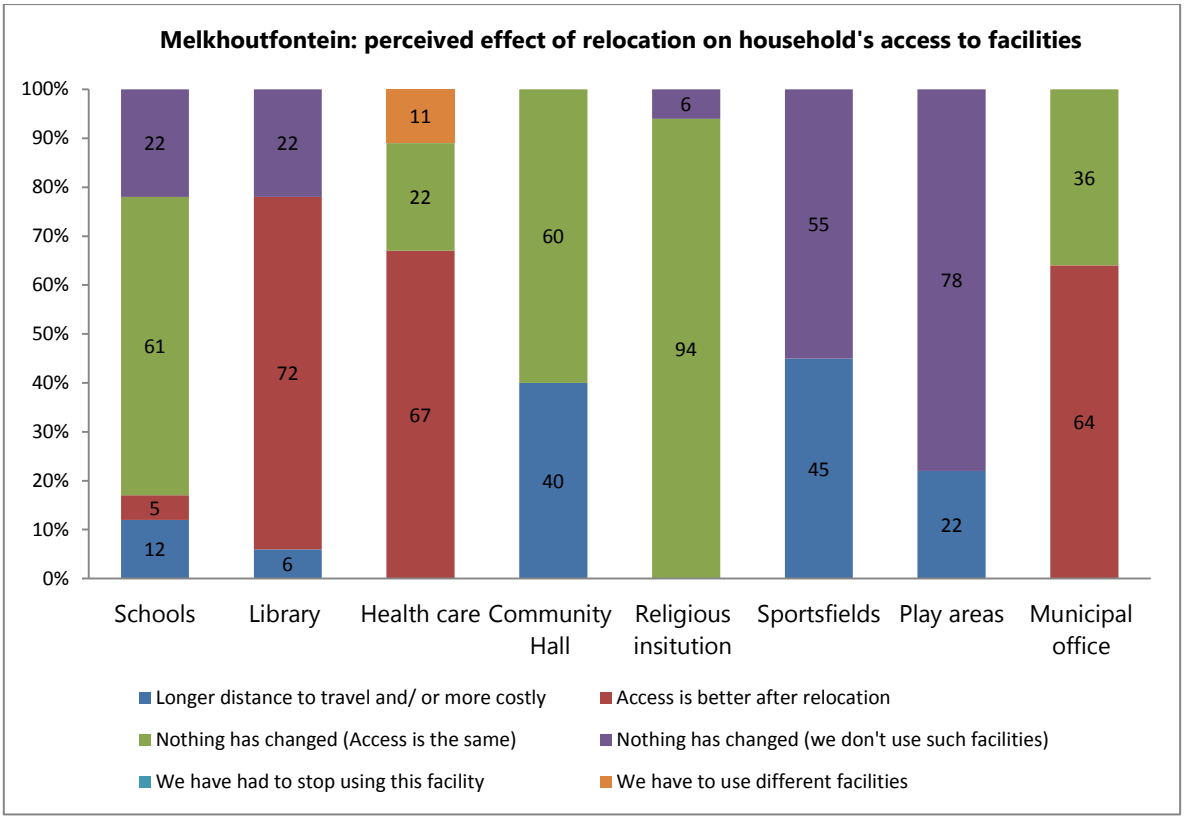

Figure 5.29: Perceived effect of location on the households' ability to access facilities (Melkhoutfontein)

Residents of Melkhoutfontein generally found that access to facilities have improved since being allocated a free house, although some residents made use of the same facility such as the school, so access has not changed since relocation. The manner that some households have improved their living standards is indicated by the fact that 11% of households opt to make use of private health facilities instead of the facility provided. Even though a sports field has been provided within walking distance of households, 61% of surveyed households do not make use of the facility. The municipal office is located within walking distance of residents.

There are limited opportunities to shop in Melkhoutfontein and goods are therefore exorbitantly priced to take advantage of the limited supply. Residents who were previously relocated from farms adjacent to Stilbaai report that access to shops have definitely been reduced due to the significant distance between the settlements. On the other hand, households that previously lived on farms adjacent to Melkhoutfontein consider that access to shops has improved since their relocation as life on the farm offered few opportunities to shop. One respondent shared personal experience where shopping entailed creating a shopping list which would be handed to the farmer. The farmer would then do the shopping on the farmworker's behalf and subtract the cost from monthly salary.

5.5 Summary of the chapter

The analysis of the provision of facilities in the four settlements indicates notable dissimilarity between the provision and accessibility of services amongst the four settlements. This reason for this variation is related to the history, function and age of each settlement. Melkhoutfontein, for example, is the oldest of the four settlements and has been well-equipped with facilities over time with the exception of a high school, which has to be accessed 35kms away in Riversdale. Diepkloof appears to be well resourced with facilities in manageable walking distance to residents. Slangrivier is quite rural in nature although a cluster of facilities have been provided in the northern end of the settlement; it is still quite from the households surveyed between 1.5 and 1.8kms away. This is quite far for households who cannot afford public transport and have to access these facilities on foot. The households surveyed in Kwanonkuthula are located in the most recent expansion area, and were located there in 2015. Very few facilities have been provided for residents of these settlements.

Household income levels amongst residents of all four settlements are low, with an average of 40% of households of all households earning between R0 and R1500 per month with a high dependency on social grants. During the interviews there appeared to be a sense of dispiritedness amongst residents, who have reiterated the importance of the social grants on the survival of their households. Costs incurred to access facilities differ between settlements depending on distance between origin and destinations. Residents who rely on taxis or private buses for transportation have an added complication that the services offered are not predictable as that the frequency of taxis are dependent on how long it takes for the vehicle to be filled with passengers in order to make the trip viable to operators.

It has also been found that perceived improvement to facilities are relative to previous access to facilities. In some instances some beneficiaries of homes consider the access to facilities to be less accessible in comparison to where they previously lived, however, the distance to the same facilities may seem highly improved for households who previously lived on farms where facilities were totally inaccessible.

The bulk of beneficiaries in all four settlements were previously accommodated within the existing town in backyard shacks, shacks in informal areas or living with their extended families in homes. Disconcertingly some future low-income housing developments are proposed in settlements already limited accessibility to facilities.

In Diepkloof and Kwanonkuthula the N2 creates a physical barrier that limiting places at which residents cross the N2 have become synonymous with high accident rates, as vehicular traffic appears to not slow down to appropriate speeds whilst passing these settlements. Learners from Slangrivier and Melkhoutfontein travel

excessive distances daily to access high schools which are highly subsidised by the Western Cape Department of Education and this is not sustainable.

The survey also revealed that in this settlement the burden of travel costs is covered by employers who fetch employees on a daily or weekly basis. The excessive distance travelled to schools and its consequent burden of cost is not carried on households as the Department of Education subsidises the transportation of learners. However, whether or not this arrangement is sustainable is questioned.

The findings show that although facilities are provided, they are not necessarily used by all households due to the age structure of household members or general interest in activities. Parents are also limiting their children from playing in play areas due to safety concerns. Some households do not access facilities due to the long distance that has to be travelled on foot due to financial constraints. This results in households having a very limited experience of their broader settlement, being confined to their homes for most of the time with a highlight monthly visit to town to collect grants and do monthly shopping purchases. Households become creative to find ways to minimise costs, having to limit the number of persons who can go to church and by choosing to make their trips linked to both walking to, and using public transport back from activity nodes.

Lastly, the Melkhoutfontein experience, in which most households have been living in their state provided housing for the longest of other settlements, suggests that as families improve their quality of life, they are able to begin to make choices about whether or not to access public facilities such as medical facilities based on their personal preferences and circumstances.

Chapter 6: Discussion

6.1 Introduction

This thesis contributes to the body of knowledge on the financial and social impacts of the spatial location of state investment in housing and related facilities, with particular reference to low income households. Chapter 1 of the study provided the background to the research problem and aim of the study in order to provide rationale for the research question and to formulate a research question. The research question is "How do different types of location impact on the ability of low income households to access economic and social opportunities in terms of financial and social costs?"

Chapter 2 of the study reviewed existing literature in order to understand how governments approach the provision of facilities linked to housing developments, and found a growing body of evidence documenting the financial impact of sprawling, expansive development patterns on municipal budgets in North America and Spain which include capital, operational, and administrative costs. The literature review also documented how the phenomenon of urban sprawl has been unfolding in developing countries including Chile, Brazil and South Africa. The main conclusion of the chapter concludes is that a sprawling, fragmented or segregated approach to low income housing demand is not financially sustainable to governments of both developed and developing countries. The literature review highlighted an absence of research on how low income households are affected financially and socially by the spatial location of state funded housing, and provided an opportunity for this study to contribute to the existing body of knowledge in this regard.

Chapter 3 describes the mix of methods applied to collect data that would assist to answer the research question, using a case study approach including the mapping of existing facilities used by households as well the household survey undertaken amongst a sample of 80 households in four settlements in Hessequa Municipality.

Chapter 4 contextualised the four settlements and considered each settlement's function, history, growth potential and low income housing need. Chapter 5 then focused on findings of the analysis of existing facilities and the household survey to understand household incomes have been impacted due to the location of the housing developments illustrated with the aid of various maps and graphs.

The study adds another perspective to the existing literature with respect to how the budgets of low income households are affected after moving to state funded housing. It was found that facility provision to low income

settlements varies between settlements, although settlements located in close proximity to areas with existing facilities derive the benefit of better access to facilities. The study determined that low income households viewed a free house as more important than accessibility to facilities and that the impact of the cost of transportation to the budgets of low income households is shielded by subsidisation of transportation. In addition it was found that there is not necessarily a link between access and use of facilities.

6.2 Findings of the study

6.2.1 The provision of facilities varies from settlement to settlement but is not necessarily informed by applicability of spatial context, but by where housing is provided

The decision of where to locate state funded housing has implications for households in terms of cost and time. The location should be informed by where social and economic opportunities already exist. It was found that beneficiaries of housing located in close proximity to facilities and employment opportunities incur little to no cost in travelling to these facilities, for example in Diepkloof, where most social and economic opportunities can be accessed on foot.

On the other hand, although spatially isolated, residents of Melkhoutfontein have been provided with a range of facilities within walking distance of their homes (these facilities were provided over a number of years). The improvement of the provision of facilities and the provision of free housing in close proximity to existing social networks encourage households to choose not to relocate to other towns. For beneficiaries who previously lived in farmworker housing, the relocation to Melkhoutfontein also offers access to a range of facilities which they previously had limited or no access to. The Municipality has therefore set a precedent that, in time, facilities will be provided to all settlements.

Failure to provide adequate facilities in relation to housing opportunities affects the quality of life of residents who have to be selective with regard to which member of the household can participate in activities offered in the broader settlement, as the costs of travelling to distant facilities can be onerous for households. Some households do not access facilities due to the long distance that has to be travelled on foot, as a result of their being unable to afford other forms of transport. This results in most households having a very limited experience of their broader settlement, being confined to their homes for most of the time with a highlight monthly visit to town to collect their social grants and do monthly shopping purchases.

The settlement of Kwanonkuthula is the most recently established of the four case studies, the settlement has very limited facilities available to its residents (only a crèche and small community hall in safe walking distance). Although the settlement is located closest to Riversdale, described in the GPS (PGWC, 2014) as having the highest growth potential in the Hessequa municipal area, its spatial location within the town of Riversdale is poor. Not only do residents have to travel an average of 2km to facilities, the N2 acts as a further hindrance requiring that residents have to incur costs in terms of time and money (if choosing to take a taxi), in order to cross the N2 safely for employment opportunities and social facilities. The fact that state subsided learner transportation is in place between the Kwanonkuthula and schools located approximately 1km away on the other side of the N2 in order to ensure the safety of learners, further reiterates the fact that the spatial location of low income housing should be considered in relation to existing facilities and other social opportunities.

6.2.2 The use of facilities provided by government is not only informed by location and accessibility to facilities

As mentioned earlier, Ureta (2008) found that the capacity of individuals to reach distant locations is reduced when mobility is primarily based on walking due to financial constraints. Overall this study has found this finding to be true, with most low income households only accessing facilities within their reach on foot. Where facilities were located excessively far from households, such as in the case of Slangrivier, the level of interaction of members of households within the functions of the larger settlement is limited due to funds available to cover transportation costs. This is consistent with the findings of Ureta (2008) who found that in the experience of Santiago, Chile, where for low income residents any travel unrelated to priority needs such as work or education were commonly postponed or discarded due to constraints of time and costs.

However, this study has also found that households' use of facilities was not only informed by the accessibility of the facility in terms of distance and availability. The age-structure of the household also contribute to which facilities are accessed by members of the household (for example, the elderly get preference to take a taxi to attend church in Slangrivier), although individuals' personal interest in the activity associated with the facility also plays a role.

6.2.3 Significance of grant collection point in the lives of low income households

The study found that the location where social grants are collected are important destinations in the lives of residents in low income settlements and that members of household's interaction with facilities within the larger

settlement directly relates to the monthly collection of grant and monthly shopping activities. Unfortunately in the only one of the four settlements in this study (Kwanonkuthula), the location of the social grant pay out point was in the same proximity as the main shopping destinations, meaning that firstly, households have to incur costs in terms of time and/ or money to the location of the social grant pay out point and secondly, households have to incur costs to reach the shopping destination. Households in Slangrivier have to travel at least one hour to reach the social grant pay out point on foot; and then have to incur time and travel costs to reach Heidelberg to do their monthly shopping, about 15km away.

6.2.4 Getting a free house is considered of more importance than good access to social and economic opportunities

Although I had assumed that limited employment opportunities would attract households to relocate to settlements with better social and economic activities, through this study I have found that the possibility of getting a free house far outweighs any inconvenience associated with limited access to social and economic opportunities, particularly as residents have witnessed elsewhere in the Municipality, that in time, facilities will probably be provided to their settlements (as has been demonstrated in Melkhoutfontein). The interviews suggested that households align their monthly visits to larger town with their social grant collection dates to save on travelling expenses. Therefore even if free housing opportunities are located far, residents are still dependant on the collection of various types of grants that assist to cover other living expenses.

6.2.5 The impact of transportation costs to low income households are buffered by subsidisation of transportation by the by government and the private sector

Travel expenses that would ordinarily have been incurred by members of households travelling to work and school have been found to be carried by employers or subsidised government, and therefore have less of an impact on household expenditure than I had anticipated. For example, although learners from Slangrivier and Melkhoutfontein have to travel excessive distances to reach high schools, this transportation is entirely state subsided therefore has no impact on households' finances. The significant degree to which farmers and employers in the construction industry subsidise travel costs to workers is also acknowledged. In the absence of this support, households would definitely struggle even more considerably, particularly as the agricultural sector provides the most employment opportunities in the municipal area.

6.2.6 Policy implications

6.2.6.1 The study highlighted the need to review municipal SDFs and HSPs in line with new research findings with particular reference to the location of low income housing and the financial implications to municipalities of providing low income housing and facilities in various spatial contexts. The current structure of the South African housing subsidy must be revisited allow for the use of vacant and underutilised land identified as in SDFs to be used for the provision of low income housing opportunities in better locations at increased densities.

6.2.6.2 The study has found that households are designing their major social interactions around the collection of social grants, coordinating monthly shopping trips with the collection of grants so as to minimise travel costs, In settlements that are poorly resourced with facilities, the focus on non-motorised transport options such as cycle routes should be considered, rather than the duplication of facilities in each settlement which is not feasible or sensible in the current financial climate. However, it is further recommended that the appropriateness of the type and location of facilities should be investigated as per the specific needs of a particular community before they are provided in settlements, to avoid non-usage of facilities and prevent wasteful expenditure.

6.3 Limitations of the study

Although by including four settlements with different characteristics located in Hessequa Municipality, the limitations of the study is that the focus of the study is only on one municipality, with a small sample size in each of the case study settlements, and that the conclusions drawn will not necessarily be applicable to all settlements. More research would be required to verify these findings in other locations.

6.4 Conclusion

The study contributes to the body of knowledge of how low income households are affected by the location of state funded housing in relation to their access to social and economic opportunities in terms of how much time and money they have to invest to opportunities. However in this study area chosen it was found that the household spend on transportation to school and work is highly subsidised by the private and public sector.

The study also found that a low income household's accessibility to social facilities is largely determined by whether facilities are in walking distance of their residence. However, this study has found that there is not necessarily a link between access and use of facilities as not all households share the same interest in the use of facilities provided.

In the study area it was found that members of low income household's interaction with facilities within the larger settlement directly relates to the monthly collection of social grants and monthly shopping activities, and found that the location where social grants are collected are particularly important destinations in the lives of residents in low income settlements.

It is hoped that this body of research will contribute to the existing body of knowledge of how low income households in South Africa are affected by the location of state funded housing in relation to their access to social and economic opportunities and it is hoped that this research will contribute to finding solutions to creating quality living environments for these communities.

References

ANC (1994). *The Reconstruction and Development Programme: A policy framework*

Ancona, A. (2007). *Legalizing Informal Settlements in São Paulo, Brazil*. Paper presented at the 7th Global Forum on Reinventing Government: Building Trust in Government, 26-29 June 2007, Vienna, Austria.

Aucamp, C. A., & Moodley, G. Y. (2002). *Making Low-cost Housing Projects More Accessible for Public Transport in Ethekwini: What are the Costs?* Paper presented at 21st Annual South African Transport Conference, 15-18 July 2002, Pretoria, South Africa.

Biermann, S. M., & Van Ryneveld, M. (2007). *Improving the Location of Low Income Housing Delivery in South African Urban Areas*. Pretoria, South Africa: CSIR.

Bond, P., & Tait, A. (1997). The failure of housing policy in post-apartheid South Africa. *Urban Forum,* 8(1), 19-41.

Budds, J., & Teixeira, P. (2005). Ensuring the right to the city: Pro-poor housing, urban development and tenure legalization in São Paulo, Brazil. *Environment and Urbanization,* 17(1), 89-114.

CNdV Africa and Provincial Government of the Western Cape (2005). *Western Cape Provincial Spatial Development Framework*.

CSIR (Centre for Scientific and Industrial Research), (1999). *The State of Human Settlements in South Africa 1994–1998.* Pretoria, South Africa: CSIR.

Cummings, J. & DiPasquale, D. (2002). The spatial implications of housing policy in Chile. In E. L. Glaeser & J. R. Meyer (Eds.), *Chile: Political Economy of Urban Development* (pp. 197-249). Cambridge, MA: Harvard University Press.

Denzin, N. K., & Lincoln, Y. S. (2003). Introduction: The discipline and practice of qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *Strategies of Qualitative Enquiry* (2nd ed., pp. 1–45). Thousand Oaks, CA: Sage.

Ducci, M. E. (2000). Chile: The dark side of a successful housing policy. In J. S. Tulchin & A. M. Garland (Eds.), *Social Development in Latin America: The Politics of Reform* (pp. 149-174). Boulder, CO: Lynne Riener.

Ewing, R., Pendall, R. and Chen, D. (2002). *Measuring Sprawl and its Impact.* Smart Growth America, Washington DC.

FFC (Financial and Fiscal Commission). (2011). *The Economic and Fiscal Costs of Inefficient Land Use Patterns in South Africa.* Pretoria, South Africa: Finance and Fiscal Commission.

Fulton, W. B., & Pendall, R. (2001). *Who sprawls most?: How growth patterns differ across the US.* Washington, DC: Brookings Institution, Center on Urban and Metropolitan Policy.

Gear, S. (1999). *Numbers or Neighbourhoods? Are the Beneficiaries of Government Subsidised Housing Provision Economically Empowered?* Issues in Development No. 18. Johannesburg, South Africa: Friedrich Ebert Stiftung.

Gilbert, A. (2002). 'Scan globally; Reinvent locally': Reflecting on the origins of South Africa's capital housing subsidy policy. *Urban Studies,* 39(10), 1911-1933.

Gilbert, A. (2004). Helping the poor through housing subsidies: Lessons from Chile, Colombia and South Africa. *Habitat International,* 28(1), 13-40.

Gillham, B. (2000). *Case Study Research Methods*. London, UK: Continuum.

Harrison, P., & Todes, A. (n.d.). *Spatial Considerations in the Development of Urban Policy in South Africa: A Research Paper as Input into the Preparation of the Integrated Urban Development Framework (IUDF).*

Hartley, J. (2004). Case study research. In C. Cassell & G. Symon (Eds.), *Essential Guide to Qualitative Methods in Organizational Research* (pp. 323–333). London, UK: Sage.

Hessequa Municipality (2012a). *Spatial Development Framework.* Riversdale, South Africa: Hessequa Municipality.

Hessequa Municipality (2012b). *Human Settlement Plan.* Riversdale, South Africa: Hessequa Municipality.

Hortas-Rico, M., & Solé-Ollé, A. (2010). Does urban sprawl increase the costs of providing local public services? Evidence from Spanish municipalities. *Urban Studies,* 47(7), 1513-1540.

Huchzermeyer, M. (2003). Low income housing and commodified urban segregation in South Africa. In C. Haferburg & J. Ossenbrügge (Eds.), *Ambiguous Restructurings of post-apartheid Cape Town: The Spatial Form of*

Socio-political Change (pp. 115-136). Münster, Germany: LIT. Khan, F., & Thurman, S. (2001). *Setting the Stage: Current Housing Policy and Debate in South Africa.* Cape Town, South Africa: Isandla Institute.

McBride, B. and French, M. (2011), *Affordable Land and Housing in Latin America and the Caribbean*. United Nations Human Settlement Programme, UN-Habitat, Nairobi, Kenya.

Moye, S., & Horne, R. (2013). *Sustainable affordable housing: new models for low-income housing in Chile.* People and the Planet 2013. P. James, et al. Melbourne, Australia, Global Cities Research Institute, RMIT University.

National Department of Human Settlements (2004). *"Breaking New Ground" A Comprehensive Plan for the Development of Integrated Sustainable Human Settlements.* Pretoria, South Africa: National Department of Human Settlements.

O' Meara, M (2010). *Innovative Approaches to Housing Policy and Production in Latin America, Two Cases: São Paulo, Brazil and Buenos Aires, Argentina.* Paper presented at the 46th ISOCARP Congress, 19-23 September 2010, Nairobi, Kenya.

PDG (Palmer Development Group) (2013). *Municipal Financial Sustainability of Current Financial Spatial Growth Patterns.* Report prepared for Western Cape Department of Environmental Affairs and Development Planning, Cape Town, South Africa.

PDG (Palmer Development Group), (2015). *Mossel Bay Growth Options Study - A Study on the Municipal Financial and Non-financial Impacts of Sprawling vs. Compact Growth Options.* Report prepared for the Western Cape Department of Environmental Affairs and Development Planning, Cape Town, South Africa.

PSC (Public Service Commission). (2003). *Report of the Evaluation of the National Housing Subsidy Scheme.* Pretoria, South Africa: PSC.

PWC (Price Waterhouse Coopers) (2014). *Western Cape Population Projections 2011 – 2040.* Report prepared for the Western Cape Department of Social Development, Cape Town, South Africa.

RSA (1995). *The Development Facilitation Act, No. 67 of 1995*. Pretoria: Government Printers

RSA (1997). *National Housing Act, No. 107 of 1997.* Pretoria: Government Printers

Smart Growth America (2013). *Building Better Budgets: A National Examination of the Fiscal Smart Growth Development*. Washington DC.

Smit, W. (2004). *International Trends and Good Practices in Housing: Lessons for South African Housing Policy.* Paper presented at Institute for Housing in South Africa International Conference on "Housing in the next decade: *Quo vadis?",* 3-6 October 2004, Cape Town, South Africa.

Todes, A, Dominik, T, & Hindson, D. (2000). From fragmentation to compaction? The case of Durban, South Africa. In M. Jenks & R. Burgess (Eds.), *Compact Cities: Sustainable Urban Forms for Developing Countries* (pp. 231-244). London, UK: Spon.

Todes, A. (2006). Urban spatial policy. In U. Pillay, R. Tomlinson & J. Du Toit (Eds.), *Democracy and Delivery: Urban Policy in South Africa* (pp. 50-74). Cape Town, South Africa: HSRC Press.

Ulfarsson, G. F., & Carruthers, J. I. (2006). *The cycle of fragmentation and sprawl: a conceptual framework and empirical model.* Environment and Planning B: Planning and Design, 33(5), 767-788.

UN-HABITAT (United Nations Human Settlements Programme) (2010). *State of the world's cities 2010/2011: Bridging the Urban Divide.* New York, NY: Routledge.

UN-HABITAT (United Nations Human Settlements Programme) (2012). *State of the world's cities 2012/2013: Prosperity of Cities.* New York, NY: Routledge.

Ureta, S. (2008). To move or not to move? Social exclusion, accessibility and daily mobility among the low income population in Santiago, Chile. *Mobilities,* 3(2), 269-289.

Van Ryneveld, P. (2010). *Public Transport: Cape Town, and the National Context.* Paper presented at the African Centre for Cities, 13 October 2010, Cape Town, South Africa.

Venter, C., Biermann, S., & Van Ryneveld, M. (2004). *Low-cost Housing Location in South African Cities: Empirical Findings on Costs and Benefits.* Pretoria, South Africa: CSIR.

WCG (Western Cape Government) (2014). *Western Cape Provincial Spatial Development Framework.* Cape Town, South Africa: WCG.

WCG DEADP (Western Cape Department of Environmental Affairs and Development Planning) (2015). *Spot Satellite Building Counts*. Cape Town, South Africa: Western Cape Department of Environmental Affairs and Development Planning.

WCG DHS (Western Cape Government Department of Human Settlements (2014). *Western Cape Housing Demand Database - July 2014 extract*. Cape Town, South Africa: Western Cape Government Department of Human Settlements

WCG PT (Western Cape Government Provincial Treasury) (2014). *Socio-Economic Profile Hessequa Municipality*. Cape Town, South Africa: Western Cape Provincial Treasury.

Yin, R. K. (2003). *Case Study Research: Design and Methods* (3rd ed.). Applied Social Research Methods Series Vol. 5. Thousand Oaks, CA: Sage.

Zack, T., & Charlton, S. (2003). *Better Off, But…: Beneficiaries' Perceptions of the Government's Housing Subsidy Scheme*. Occasional Paper No. 12. Johannesburg, South Africa: Housing Finance Resource Programme.

Annexure A

SURVEY QUESTIONS

The real costs of low-income settlements: experiences in varied spatial contexts within the same municipal boundary

Name of interviewer	
Name of interviewee (unless interviewee prefers to remain anonymous)	
Date	
Place	

1. Background

Previous accommodation	
When did you move to your new house?	
Where did you live before moving here?	
For how long did you live there before moving into this house?	

Why did you move here?	**Tick**	**What type of accommodation did you live in at this previous place?**	**Tick**
To own my own house		Farmworker housing	
To be close to family/ friends		House	
To be closer to work		Hostel	
I was evicted from where I stayed		Room in a house	
I could not afford where I was previously living		Shack/ Wendy house in a backyard	
It was too overcrowded where I lived		Shack in informal settlement	
To find work		I was homeless	
Other		Other	

2. Household structure

Total number of people in household		Number of adults over 18		Number of children under the age of 18	
Adults living in the house (over 18 years old)					
Age	Gender F/ M		Employment status (Employed, unemployed, self-employed, retired, home executive, etc.)		
		Head of the household			
Age	Gender F/ M	Relation to head of household	Employment status (Employed, unemployed, self-employed, retired, home executive, etc.)		

Has anyone in your household been retrenched or unable to find work since moving to this house?	If yes, please provide more details

3. Employment, household income and expenditure

Transportation to place of employment			
How many household members use this form of transport to travel to work?		How long does it take to travel from home to work?	How much does transport cost you per week to travel to work?
Mode of transport	Number of people		
Taxi			
Bus			
Private car			
Walk			
Lift club			

How much money does the household earn in total per month (excluding grants)?		
Formal employment, informal employment (selling/ trading goods or services informally) and/or rental income	☐ **R 0 – R500**	☐ **R 501 - R1500**
	☐ **1501 – R5000**	☐ **R5001 – R 10000**
	☐ **R10 001 – R20000**	☐ **R20001 and more**
How many social security grants are accessed by members of your household in total?		
Social security grants E.g. Old age grant, Child support grant, Disability grant, Foster care grant, War veterans grant, Care dependency grant, etc.	☐ **None**	☐ **1 grant**
	☐ **2 – 4 grants**	☐ **5 grants or more**
How much does the household spend each month on the following in total?		
Groceries/ food	☐ **R 1 – R300**	☐ **R 301 – R500**
	☐ **R501 – R1000**	☐ **R1001 and more**
Electricity	☐ **Only free electricity basic used**	☐ **R 1 – R200**
	☐ **R 201- R500**	☐ **R500 and more**
Other fuel – gas, paraffin, etc.	☐ **R0**	☐ **R 1 – R200**
	☐ **R 201- R500**	☐ **R500 and more**
Clothing	☐ **R0**	☐ **R 1 – R200**
	☐ **R 201- R500**	☐ **R500 and more**
Transport	☐ **R 0**	☐ **R 1 – R200**
	☐ **R 201- R500**	☐ **R501 and more**

Shopping trends	
Where do you buy your monthly/ weekly groceries?	
How often do you make this trip and how do you travel there?	
Has your relocation affected where you do your monthly/ weekly household shopping?	

4. **Education** (of children under the age of 18 years living in the house)

Transportation to place of education

Mode of transport	How many children in this household members use this type of transport to travel to school?	Type of school (pre-primary, primary, high school, etc.)	How long does it take to travel to school?	How much does this transportation to school cost on a weekly basis for the household?
Taxi				
Bus				
Private car				
Walk				
Lift club				

Any safety concerns with regard to children traveling to school?	
How did your household's relocation affect getting to school?	
Have the children had to change schools since the relocation?	

5. Health

Where does members of your household access health facilities?				
Tick	Facility type	How does members of your household travel to get to the facility? (Bus, taxi, walk, train, etc.)	Is it the same facility they accessed before they were provided this house?	How much do they spend on travelling to the facility?
	Day hospital			
	Clinic			
	Private doctor			
	Other:			
	Other:			

Has your relocation affected the accessing of these facilities?	

6. Current Accommodation

Tenure	Tick	Home ownership	Tick
Renting		Male	
Allocated by Municipality		Female	
Purchased privately			
How long have you been living in this house?			
What type of house is this? (Walk-up, single stand house, semi- detached, etc.)			
How many bedrooms?			
What extensions (if any) have you made to your house and why was it necessary to do so?			
What extensions (if any) have you made to improve security at this property due to criminal activity?			

7. Access to other facilities

Facility	Name and location of the facility	How does members of your household travel to get to the facility? (Bus, taxi, walk, train, etc.)	How long does it take you to get to the facility?	How much does it cost you to travel to this facility per return trip?	How often do you use this facility / Why do you not use this facility
Library					
Community hall					
Religious institution					
Police station					
Sports facilities					
Play parks					
Municipal office					
SASSA payout point					
Other					
Other comments:					

8. General

Do you think the relocation has improved the lives of your family?	
If you had a choice, would you prefer home ownership in this location or rental/ informal housing in a more accessible location?	
Which town in Hessequa Municipality would you like to live in and why?	

Annexure B

APPLICATION FORM

Please Note:
Any person planning to undertake research in the Faculty of Engineering and the Built Environment (EBE) at the University of Cape Town is required to complete this form **before** collecting or analysing data. The objective of submitting this application prior to embarking on research is to ensure that the highest ethical standards in research, conducted under the auspices of the EBE Faculty, are met. Please ensure that you have read, and understood the **EBE Ethics in Research Handbook** (available from the UCT EBE, Research Ethics website) prior to completing this application form: http://www.ebe.uct.ac.za/usr/ebe/research/ethics.pdf

APPLICANT'S DETAILS		
Name of principal researcher, student or external applicant:		Raudhiyah Salrabochen
Department:		Civil Engineering
Preferred email address of applicant:		Raudhiyah@gmail.com
If a Student:	Your Degree: e.g., MSc, PhD, etc.:	MPhil: Urban Infrastructure: Design & Management
	Name of Supervisor (if supervised):	Warren Smit
If this is a research contract, indicate the source of funding/sponsorship:		n/a
Project Title:		THE REAL COSTS OF LOW-INCOME SETTLEMENTS: EXPERIENCES IN VARIED SPATIAL CONTEXTS WITHIN THE SAME MUNICIPAL BOUNDARY

I hereby undertake to carry out my research in such a way that:

- there is no apparent legal objection to the nature or the method of research; and
- the research will not compromise staff or students or the other responsibilities of the University;
- the stated objective will be achieved, and the findings will have a high degree of validity;
- limitations and alternative interpretations will be considered;
- the findings could be subject to peer review and publicly available; and
- I will comply with the conventions of copyright and avoid any practice that would constitute plagiarism.

SIGNED BY	Full name	Signature	Date
Principal Researcher/ Student/External applicant	Raudhiyah Salrabochen		**11 Aug 2015**

APPLICATION APPROVED BY	Full name	Signature	Date
Supervisor (where applicable)	Warren Smit		**17 Aug 2015**
HOD (or delegated nominee) Final authority for all applicants who have answered NO to all questions in Section1; and for all Undergraduateresearch (including Honours).	Prof Mark van Rynevald		Click here to enter a date.
Chair : Faculty EIR Committee For applicants other than	Click here to enter text.		28 Sept 2015 Click here to enter a date.

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undergraduate students who have answered YES to any of the above questions.			